```
1520 IF C > A THEN 1720
1540 ON L1 GOTO 1570,1620,1690
1570 IF D$(R-1,C)="." THEN 1590
1580 GOTO 1720
1590 GOTO 2090
1620 IF D$(R,C+1)="." THEN 1660
1630 IF C=A THEN 1650
1640 GOTO 1720
1650 LET P(J,0)=P(J,0)-1
1660 GOTO 2160
1690 IF D$(R+1,C)="." THEN 1710
1700 GOTO 1720
1710 GOTO 2230
1720 NEXT L2
1730 NEXT L0
1740 GOTO 1260
1750 PRINT C$(J);" MOVE";
1760 INPUT A$
1770 GOSUB 2950
1790 IF LEFT$(A$,1)="R" THEN 2860
1800 IF LEFT$(A$,1)="H" THEN 2460
1810 LET A$=MID$(A$,1,2)
1811 P1=0
1813 FOR B0=1 TO A-1
1815 IF MID$(A$(J),B0,1)=MID$(A$,1,1) THEN P1=B0
1817 NEXT B0
1830 IF P1=0 THEN 2430
1832 LET P2=0
1834 FOR B0=1 TO 4
1836 IF MID$(M$(J),B0,1)=MID$(A$,2,1) THEN P2=B0
1838 NEXT B0
1850 IF P2=0 THEN 2430
1860 LET R=INT(P(J,P1)/10)
1870 LET C=P(J,P1)-10*R
1880 IF R=0 THEN 2430
1890 IF C > A THEN 2430
1910 ON J GOTO 1930,1990
1930 IF C < A THEN 1970
1940 IF P2 <> 2 THEN 1970
1950 LET P(1,0)=P(1,0)-1
1960 GOTO 2160
1970 GOTO 2040
1990 IF R > 1 THEN 2040
2000 IF P2 <> 1 THEN 2040
2010 LET P(2,0)=P(2,0)-1
2020 GOTO 2090
2040 ON P2 GOTO 2070,2140,2210,2280
2070 IF D$(R-1,C)="." THEN 2090
2080 GOTO 2430
2090 LET D$(R-1,C)=MID$(A$(J),P1,1)
2100 LET P(J,P1)=P(J,P1)-10
2110 GOTO 2330
2140 IF D$(R,C+1)="." THEN 2160
2150 GOTO 2430
2160 LET D$(R,C+1) = MID$(A$(J),P1,1)
2170 LET P(J,P1)=P(J,P1)+1
2180 GOTO 2330
2210 IF D$(R+1,C)="." THEN 2230
2220 GOTO 2430
2230 LET D$(R+1,C)=MID$(A$(J) ,P1,1)
2240 LET P(J,P1)=P(J,P1)+10
2250 GOTO 2330
2280 IF D$(R,C-1)="." THEN 2300
2290 GOTO 2430
2300 LET D$(R,C-1)=MID$(A$(J),P1,1)
2310 LET P(J,P1)=P(J,P1)-1
2330 LET D$(R,C)="."
2340 IF B=2 THEN 2380
2350 IF J=2 THEN 2380
2360 PRINT "THE DIGITS MOVE: ";MID$(A$(J),P1,1);
2365 PRINT MID$(M$(J),L1,1)
2380 IF P(J,0) <> 0 THEN 2420
2390 PRINT
2400 PRINT "*** THE ";C$(J);" WIN!!! ***"
2410 GOTO 3530'
2420 GOTO 2900
2430 PRINT "ILLEGAL MOVE OR BAD INPUT."
2440 PRINT "INPUT IGNORED. TYPE H FOR HELP."
2450 GOTO 1750
2460 PRINT "THE ";C$(J);" HAVE THESE LEGAL MOVES:"
2480 FOR J3=1 TO A-1
2490 LET P$=MID$(A$(J),J3,1)
2500 LET R=INT(P(J,J3)/10)
2510 LET C=P(J,J3)-10*R
2530 ON J GOTO 2550,2620
2550 IF C=A THEN 2590
2560 IF C > A THEN 2580
2570 GOTO 2690
2580 GOTO 2830
2590 PRINT " ";P$;"E";
2600 GOTO 2690
2620 IF R=1 THEN 2660
2630 IF R=0 THEN 2650
2640 GOTO 2690
2650 GOTO 2830
2660 GOTO 2700
2690 IF D$(R-1,C) <> "." THEN 2730
2700 PRINT "  ";P$;"N";
2730 IF D$(R,C+1) <> "." THEN 2770
2740 PRINT "  ";P$;"E";
2770 IF J=2 THEN 2810
2780 IF D$(R+1,C) <> "." THEN 2800
2790 PRINT "  ";P$;"S";
2800 GOTO 2830
2810 IF D$(R,C-1) <> "." THEN 2830
2820 PRINT "  ";P$;"W";
2830 NEXT J3
2840 PRINT
2850 GOTO 1750
2860 PRINT "THE ";C$(J);" GIVE UP!!"
2870 PRINT "*** THE ";C$(3-J);" WIN!!! ***"
2880 GOTO 3530'
2900 NEXT J
2910 GOTO 840
2950 IF LEN(A$)>10 THEN 3090
2960 LET C1=0
2963 FOR B0=1 TO LEN(A$)
2965 LET A(B0)=ASC(MID$(A$,B0,1))
2970 NEXT B0
2975 LET A(0)=LEN(A$)
2980 FOR J2=1 TO A(0)
2990 IF A(J2)<96 THEN 3010
3000 LET A(J2)=A(J2)-32
3010 IF (57-A(J2))*(A(J2)-48) >= 0 THEN 3040
3020 IF (90-A(J2))*(A(J2)-65) >=  0 THEN 3040
3030 GOTO 3060
3040 LET C1=C1+1
3050 LET A(C1)=A(J2)
3060 NEXT J2
3070 LET A(0)=C1
3073 LET A$=""
3075 FOR B0=1 TO A(0)
3077 LET A$=A$+CHR$(A(B0))
3080 NEXT B0
3090 RETURN
3130 PRINT CHR$(26)
3140 PRINT "HERE'S A SAMPLE PLAYING BOARD:"
3150 PRINT
3160 PRINT "1 . . . ."
3170 PRINT "2 . . . ."
3180 PRINT "3 . . . ."
3190 PRINT "4 . . . ."
3200 PRINT ". A B C D"
3210 PRINT
3220 PRINT "TWO SETS OF PIECES (DIGITS AND LETTERS) RACE AT RIGHT ANG";
3225 PRINT "LES"
3230 PRINT "ACROSS A SQUARE BOARD  VACANT LOCATIONS ARE SHOWN AS PERI";
3235 PRINT "ODS."
3240 PRINT "YOU CHOOSE THE THE BOARD SIZE (THE ONE ABOVE IS SIZE 5.)"
3260 PRINT "  N"
3270 PRINT "  :"
3280 PRINT "W---E"
3290 PRINT "  :"
3300 PRINT "  S"
3310 PRINT
3320 PRINT "THE OBJECT IS TO MOVE ALL OF YOUR PIECES ACROSS THE BOARD"
3330 PRINT "AND OFF THE OPPOSITE EDGE. DIGITS LEAVE THE BOARD ONLY AT"
3340 PRINT "THE EASTERN EDGE; LETTERS ONLY AT THE NORTHERN. THE WINNER"
3350 PRINT "IS THE PLAYER WHOSE PIECES HAVE ALL LEFT THE BOARD."
3360 GOSUB 10000
3370 PRINT "THE PLAYERS GO IN TURN, MOVING ONE OF THEIR PIECES TO AN"
3380 PRINT "ADJACENT LOCATON WHICH IS EITHER OFF THE BOARD OF CURRENT";
3385 PRINT "LY"
3390 PRINT "VACANT. THERE ARE NO DIAGONAL MOVES, NO JUMPS AND NO CAPT";
3395 PRINT "URES."
3400 PRINT "DIGITS CANNOT MOVE WEST, NOR LETTERS MOVE SOUTH."
3410 PRINT
3420 PRINT "TO MOVE A PIECE, TYPE ITS NAME AND THE FIRST LETTER OF THE"
3430 PRINT "DESIRED DIRECTION.  EXAMPLES:"
3440 PRINT "  2E MEANS THAT PIECE 2 WANTS TO GO EAST"
3450 PRINT "  BW MEANS THAT PIECE B WANTS TO GO WEST."
3460 PRINT
3470 PRINT "NOTE: YOU FORFET THE GAME IF YOUR MOVE LEAVES YOUR OPPONENT
3480 PRINT "WITHOUT ANY LEGAL MOVE."
3490 PRINT
3500 PRINT "LASTLY, YOU MAY TYPE R TO RESIGN AND H FOR HELP."
3510 PRINT
3520 RETURN
3530 END
10000 PRINT:LINE INPUT "ENTER 'RETURN' TO CONTINUE. ";XX$
10010 PRINT CHR$(26)
10020 RETURN
10030 END
```

Doors (문)

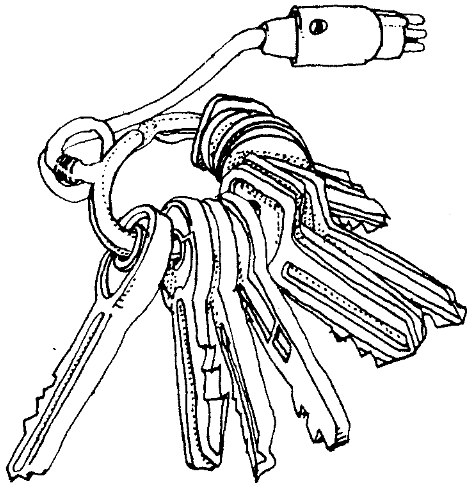
홍미 진진한 게임이다. 먼저, 자물쇠로 굳게 잠겨 있는 4중의 문을 상상하기 바란다. 당신은 11개의 열쇠가 달린 열쇠고리를 가지고 있다. 열쇠에는 0부터 10까지의 번호가 붙어 있다. 당신은 그 중에서 임의의 열쇠(번호)를 골라 4중 문을 모두 여는 것이다.

모든 문을 열 때까지 14번 시도할 수 있다.

하나의 열쇠로 하나 이상의 문이 열리는 경우도 있다.

첫번째에 자물쇠가 열리지 않더라도 포기하지 말고 또 시도하라. 4번째 문 안에는 굉장한 보물이 숨겨져 있다.

Doors was conceived and written by Bill Ingram.



```
RUN
                          DOORS
                   CREATIVE COMPUTING
                 MORRISTOWN, NEW JERSEY


THERE ARE 4 LOCKED DOORS AND THERE ARE 11 KEYS(0- 10 )
YOU WILL HAVE  14 TRIES TO OPEN THEM ALL   모든 문을 열 때까지 14번 시도할 수
(SOME KEYS MAY OPEN MORE THAN ONE DOOR)    있습니다(하나의 열쇠로 몇 개의 문이
TRIES LEFT # 14              DOOR # 1 KEY? 2 열리는 경우도 있습니다).
TRIES LEFT # 13              DOOR # 1 KEY? 3
TRIES LEFT # 12              DOOR # 1 KEY? 6
TRIES LEFT # 11              DOOR # 1 KEY? 0
WA LAH! 와아, 열렸다!
TRIES LEFT # 10              DOOR # 2 KEY? 3
TRIES LEFT # 9               DOOR # 2 KEY? 2
TRIES LEFT # 8               DOOR # 2 KEY? 5
TRIES LEFT # 7               DOOR # 2 KEY? 7
TRIES LEFT # 6               DOOR # 2 KEY? 10
TRIES LEFT # 5               DOOR # 2 KEY? 9
TRIES LEFT # 4               DOOR # 2 KEY? 1
TRIES LEFT # 3               DOOR # 2 KEY? 2
TRIES LEFT # 2               DOOR # 2 KEY? 4
SURPRISE! 놀랍습니다!
TRIES LEFT # 1               DOOR # 3 KEY? 6
YOU LOSE,  THE REST OF THE KEYS ARE:   실패, 나머지 열쇠는
DOOR 3 KEY 8
DOOR 4 KEY 1
DO YOU WANT TO PLAY AGAIN(YES SIR! OR NO SIR!) 다시 한 번 하겠습니까?
? YES SIR!
THERE ARE 3 LOCKED DOORS AND THERE ARE 11 KEYS(0- 10 )
YOU WILL HAVE  9 TRIES TO OPEN THEM ALL
(SOME KEYS MAY OPEN MORE THAN ONE DOOR)
TRIES LEFT # 9               DOOR # 1 KEY? 1
TRIES LEFT # 8               DOOR # 1 KEY? 0
ABRACADABRA!
TRIES LEFT # 7               DOOR # 2 KEY? 3
TRIES LEFT # 6               DOOR # 2 KEY? 4
TRIES LEFT # 5               DOOR # 2 KEY? 5
TRIES LEFT # 4               DOOR # 2 KEY? 8
TRIES LEFT # 3               DOOR # 2 KEY? 1
TRIES LEFT # 2               DOOR # 2 KEY? 2
TRIES LEFT # 1               DOOR # 2 KEY? 10
YOU LOSE,  THE REST OF THE KEYS ARE:
DOOR 2 KEY 0
DOOR 3 KEY 6
DO YOU WANT TO PLAY AGAIN(YES SIR! OR NO SIR!)
? NO SIR!
OK
```

```
1 PRINT CHR$(26);TAB( 27);"DOORS"
2 PRINT TAB( 20);"CREATIVE COMPUTING"
3 PRINT TAB( 18);"MORRISTOWN, NEW JERSEY"
4 PRINT
5 PRINT
25 DIM K(20)
30 DEF FN R(Z)=INT(Z*RND(1))
32 FOR X=0 TO 6: READ R$(X): NEXT X
33 FOR X=0 TO 6: READ S$(X): NEXT X
35 D=1: T=15: N=3+FN R(3): K3=8+FN R(5)
40 PRINT:PRINT "THERE ARE";N;"LOCKED DOORS AND THERE ARE";K3;"KEYS ( 0 -"K3-1"). "
41 PRINT "YOU WILL HAVE";T-1;"TRIES TO OPEN THEM ALL. "
42 PRINT "(SOME KEYS MAY OPEN MORE THAN ONE DOOR). ":PRINT
65 FOR X=2 TO N: K(X)=FN R(K3): NEXT X
70 T=T-1: IF T=0 THEN 150
80 PRINT "TRIES LEFT: "; :PRINT USING "##";T; :PRINT TAB( 24);"DOOR #";D;"KEY";
90 INPUT K2
100 IF K2<>K(D) THEN 70
110 PRINT S$(FN R(7)): D=D+1
120 IF D<N+1 THEN 70
125 PRINT
130 PRINT "YOU DID IT, BEHIND DOOR #";N;"IS.........................."
140 PRINT R$(FN R(7))"!!": GOTO 170
150 PRINT:PRINT "SORRY, YOU LOSE, THE REST OF THE KEYS ARE:"
160 FOR X=D TO N: PRINT "DOOR";X;CHR$(8);":   KEY:";K(X):NEXT X
170 PRINT:PRINT "DO YOU WANT TO PLAY AGAIN (YES SIR! OR NO SIR!)"
171 INPUT Q$
180 IF Q$="YES SIR!" THEN 35
181 IF Q$="NO SIR!" THEN 999
190 PRINT "HEY, I DIDN'T JUST FALL OFF A TURNIP TRUCK, YA KNOW!!!!!"
200 GOTO 170
500 DATA "A POT OF GOLD","A BEAUTIFUL MAIDEN","A MAN EATING TIGER"
505 DATA "NOTHING","$22.59","A ROLLS ROYCE","THE KEYS TO THE WORLD"
600 DATA "OPEN SESAME","C-R-E-E-E-E-E-A-A-K!","WA LAH!","TA-DAH!"
605 DATA "ABRACADABRA","CLICK !?!!?!?!!???!!!!","SUPRISE!"
999 END
```

Drag(드래그 레이스)

단거리의 가속(加速) 성능을 겨루는 자동차 게임이다.

참가자는 각각 가속 경주용 차(dragster)를 설계할 수 있으며, 다른 플레이어나 컴퓨터와 솜씨를 겨룬다. 당신은 당신의 드래그스터의 마력, 기어 비율, 타이어의 폭과 지름을 마음대로 선택할 수 있다. 제한이 없으므로, 어떤 값이든 상관없다.

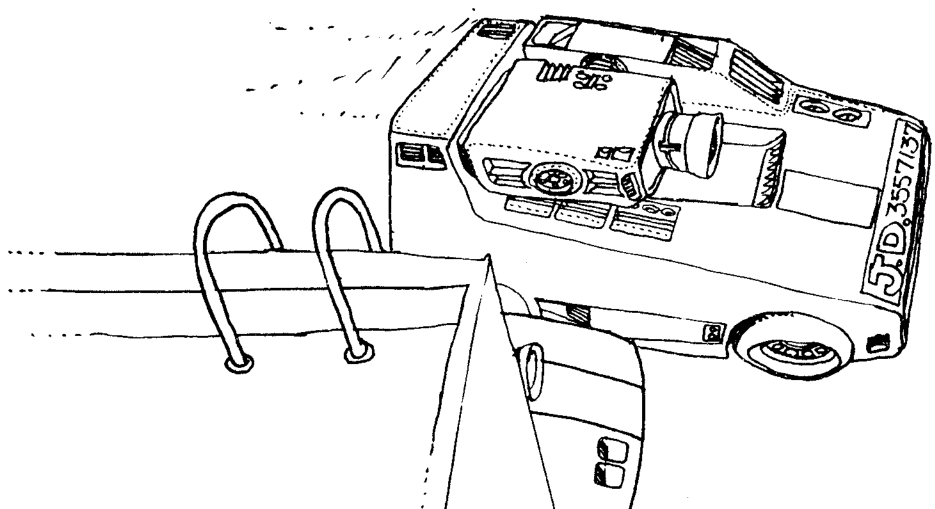
'그래? 그렇다면 2백만 마력의 엔진을 싣자. 그러면 굉장히 빠르겠지?' 하고 생각할는지도 모르겠다. 하지만 그것은 넌센스. 차체의 무게에 비해 엔진이 너무 크기 때문에, 결국 최고 시속 33마일 정도밖에 되지 않는다. 컴퓨터는 항상 냉엄하리만큼 정확하다.

※ 프린터를 사용하고 있는 시스템에서는, 경우에 따라 시간이 걸리는 일이 있다.

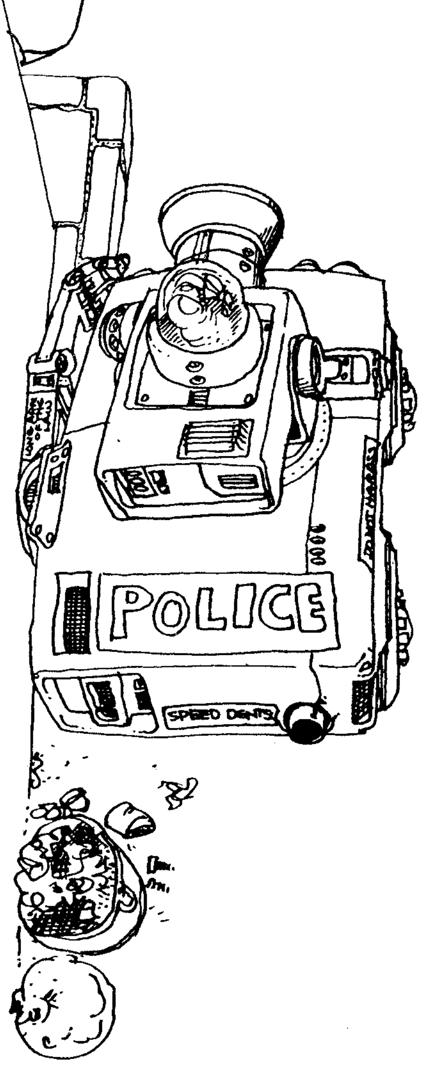
This program came from the Hewlett-Packard User Library. It also appeared in *Creative Computing*, Jan/Feb 1977.

```
RUN
                         DRAG
                   CREATIVE COMPUTING
                  MORRISTOWN NEW JERSEY



WELCOME TO DRAG STRIP.
WOULD YOU LIKE THE INSTRUCTIONS ? YES  설명이 필요합니까?
YOU MAY RACE AGAINST ONE OF YOUR FRIENDS OR YOU MAY RACE
AGAINST MY DRAGSTER. YOU WILL BE ASKED TO DESIGN YOUR
OWN MACHINE, SPECIFYING HOURSEPOWER, READ END RATIO (X:1),
TIRE WIDTH IN INCHES AND TIRE DIAMETER IN FEET.
DO YOU WANT TO RACE AGAINST ME ? YES  컴퓨터인 나에게
I WILL HAVE CAR #1.                   도전할 작정입니까?
DESIGN CAR #2:
HORSEPOWER=? 790  마력은?
REAR END RATIO=? 4.5
TIRE WIDTH=? 22     타이어의 폭은?
TIRE DIAMETER=? 4   타이어의 지름은?

GO!


ELAPSED        CAR #1                 CAR #2
TIME   SPEED    DISTANCE     SPEED    DISTANCE
(SEC)  (MPH)      (FT)       (MPH)      (FT)

CAR # 2  STOPS BURNING RUBBER  타이어가 타버려서 #2는 스톱.
 1      22.0707     16.3821  19.5767     14.3695
 2      43.5753     64.7826  39.9392     58.1071
 3      64.0015     143.982  60.3405     131.846
 4      82.9394     252.079  79.8184     234.947
 5      100.107     386.66r  97.4014     365.321
 6      115.356     545.024  112.362     519.607
CAR # 1  STOPS BURNING RUBBER
 7      128.639     724.299  124.389     693.674
 8      139.186     921.158  133.582     883.247
 9      146.922     1131.34  140.326     1084.43
 9.86047     151.811     1320  144.586     1264.35
          WINNER

DO YOU WANT TO TRY AGAIN ? NO  다시 한 번 하겠읍니까?
Ok
```

```
3 PRINT TAB( 25);"DRAGRACE"
5 PRINT TAB( 20);"CREATIVE COMPUTING"
7 PRINT TAB( 19);"MORRISTOWN NEW JERSEY"
8 PU$="##     ###.###    ####.###    ###.###    ####.###"
10 DIM P(2),E(2),W(2),S(2),X(2),M(2),C(2),B(2),Y(2)
20 DIM Q(2)
30 PRINT:PRINT:PRINT
35 PRINT "WELCOME TO DRAG STRIP."
40 PRINT "WOULD YOU LIKE THE INSTRUCTIONS";
50 INPUT I$
60 IF LEFT$(I$,1)="N" THEN 110
65 PRINT
70 PRINT "YOU MAY RACE AGAINST ONE OF YOUR FRIENDS OR YOU MAY RACE"
80 PRINT "AGAINST MY DRAGSTER. YOU WILL BE ASKED TO DESIGN YOUR"
90 PRINT "OWN MACHINE, SPECIFYING HOURSEPOWER, READ END RATIO (X:1),"
100 PRINT "TIRE WIDTH IN INCHES AND TIRE DIAMETER IN FEET.":PRINT
110 PRINT "DO YOU WANT TO RACE AGAINST ME";
120 INPUT I$
130 IF LEFT$(I$,1)="N" THEN 200
140 PRINT:PRINT "I WILL HAVE CAR #1."
150 P(1)=600
160 E(1)=5.9
170 W(1)=22
180 D(1)=3.9
190 GOTO 290
200 PRINT:PRINT "DESIGN CAR #1:"
210 PRINT "HOURSPOWER=";
220 INPUT P(1)
230 PRINT "REAR END RATIO=";
240 INPUT E(1)
250 PRINT "TIRE WIDTH=";
260 INPUT W(1)
270 PRINT "TIRE DIAMETER=";
280 INPUT D(1)
290 PRINT:PRINT "DESIGN CAR #2:"
300 PRINT "HORSEPOWER=";
310 INPUT P(2)
320 PRINT "REAR END RATIO=";
330 INPUT E(2)
340 PRINT "TIRE WIDTH=";
350 INPUT W(2)
360 PRINT "TIRE DIAMETER=";
370 INPUT D(2)
380 PRINT
390 PRINT "GO!"
400 K1=500
410 K2=1.6
420 K3=2
430 K4=.0006
440 K5=.00006
450 K6=.2
460 K7=4
470 K8=.00015
480 Q(1)=0:Q(2)=0
490 S(1)=0:S(2)=0
500 X(1)=0:X(2)=0
510 REM: M IS MASS
520 FOR J=1 TO 2
530 M(J)=(K1+K2*P(J)+K3*W(J)*D(J)+K7*D(J)^2)/32.2
540 REM: C IS DRAG FROM WIND.
550 C(J)=K4*M(J)^(2/3)+K8*W(J)*D(J)
560 REM: B IS THE MAX ACCELERATION WITHOUT BURNING
570 B(J)=15+28*W(J)*D(J)/((W(J)+6)*(D(J)+1))
580 REM: Y IS THE SCALE FACTOR FOR RPM VS POWER
590 Y(J)=3.7-.0033*P(J)
600 NEXT J
610 PRINT
620 PRINT
630 PRINT TAB( 12);"CAR #1";TAB( 35);"CAR #2"
635 PRINT "ELAPSED";TAB( 12);"------";TAB( 35);"------"
640 PRINT "TIME   SPEED    DISTANCE    SPEED    DISTANCE"
650 PRINT "(SEC)  (MPH)      (FT)      (MPH)      (FT)"
655 PRINT "-----  -----   --------     -----   --------"
```



```
660 PRINT
670 FOR T=0 TO 100
680 FOR T1=1 TO 100
690 FOR J=1 TO 2
700 REM: R IS RPM
710 R=60*S(J)*E(J)/(3.1415926#*D(J))
720 REM: L0 IS ENGINE TORQUE.
730 L0=(P(J)/42.5)*(50+.0070*(R/Y(J))-4E-10*(R/Y(J))^3)
740 REM: L1 IS TORQUE FROM FRICTION.
750 L1=P(J)*(K5*R+K6)
760 REM: R2 IS REAR AXLE TORQUE.
770 L2=E(J)*(L0-L1)
780 REM: F IS FORCE ON ROAD FROM TIRES.
790 F=2*L2/D(J)
800 REM: TEST FOR BURN.
810 IF F > M(J)*B(J) THEN 880
820 REM: A=ACCELERATION
830 IF Q(J) <> 0 THEN 860
840 PRINT "CAR #";J;" STOPS BURNING RUBBER"
850 Q(J)=1
860 A=(F-C(J)*S(J)^2)/M(J)
870 GOTO 900
880 A=B(J)-C(J)*S(J)^2/M(J)
890 REM: S IS FEET IN FT/SEC.
900 S(J)=S(J)+A*.01
910 REM: X IS DISTANCE IN FT.
920 X(J)=X(J)+S(J)*.01
930 NEXT J
940 REM: TEST FOR FINISH
950 IF X(1)<5280/4 AND X(2)<5280/4 THEN 1160
960 IF X(1)>X(2) THEN 1080
970 T3=(X(2)-5280/4)/S(2)
980 T=T+T1/100-T3
990 X(2)=5280/4
1000 X(1)=X(1)-S(1)*T3
1010 PRINT USING PU$;T;S(1)*3600/5280;X(1);S(2)*3600/5280;X(2)
1020 PRINT TAB( 40);"WINNER"
1030 PRINT
1040 PRINT "DO YOU WANT TO TRY AGAIN";
1050 INPUT I$
1060 IF LEFT$(I$,1)="Y" THEN 110
1070 END
1080 T3=(X(1)-5280/4)/S(1)
1090 T=T+T1/100-T3
1100 X(1)=5280/4
1110 X(2)=X(2)-S(2)*T3
1120 PRINT USING PU$;T;S(1)*3600/5280;X(1);S(2)*3600/5280;X(2)
1130 PRINT TAB( 10);"WINNER"
1140 PRINT
1150 GOTO 1040
1160 NEXT T1
1170 PRINT USING PU$;T+1;S(1)*3600/5280;X(1);S(2)*3600/5280;X(2)
1180 NEXT T
1200 END
```



Eliza (엘리자)

ELIZA는 자연스러운 영어 회화를 할 수 있게 하는 프로그램이다. 이것은 ELIZA Carl Rogers의 정신 분석 이론에 근거하고 있기 때문이다. ELIZA를 영어 회화의 초급자 정도로 생각하고 게임을 시작한다. 그러나 ELIZA는 영어 회화를 훌륭히 한다.

이 게임의 원리는, ① 문장을 입력한다. ② 문 중에서 Key word를 찾는다. ③ Key word의 인칭 대명사, 동사를 적절히 바꾼다('I'는 'You', 'ARE'는 'AM'으로 답하는 식). ④ 마지막에 Key word로부터 적절한 대답용의 문을 택하여 출력한다. 이 네 부분의 프로그램에 의해 움직인다.

(1) 36개의 Key word. 예를 들면, 'I AM', 'WHY', 'DONT YOU', 'COMPUTER' 등. 이들의 Key word에는 순서가 있어 'YOU ARE'는 'YOU'보다 먼저 입력된다.

(2) 12개의 번역에 사용되는 단어. 짝을 만들어 사용한다. 예를 들면, 'I', 'YOU', 'AM', 'ARE' 등.

(3) 112개의 대답용 문. 이 문들은 Key word에 적절히 대응되도록 만들어져 있다. '*'로 끝나는 문은 뒤에 번역된 문이 연결되며, 그냥 끝나는 문은 그대로 출력된다.

(4) 출력 문을 결정하는 수(數) 데이터 Key word에는 2개를 한 조로 하여 넘버가 붙어 있다. 예를 들면, 5번째의 (10, 4)는 5번째의 Key word 'I DONT'에 대응하며, NO. 10과 NO. 4의 문으로 대응한다.

프로그램을 보며 좀더 자세히 설명한다.

1행 ~160행 : Introduction과 첨자 범위를 확보하는 부분(section)이다. N1, N2, N3는 각각 Key word, 번역문, 대답문의 번호이다. 짧은 프린트문 다음에, 대답용의 Key word 번호 S, R, N(사용되는 문의 차례)의 첨자 범위가 확보되고, 마지막으로 Introduction이 출력된다.

170행 ~255행 : 입력 부분. 당신이 입력한 문의 앞과 뒤에 공백을 둔다(Key word를 찾기 쉽게 하기 위해). 문이 한 행을 넘지 않도록 주의하기 바란다. 어포스트러피(')는 생략한다(DON'T는 DONT라 입력한다). 또, SHUT라는 key word는 Shut up이라 해석되어 회화가 끊어진다. 같은 것을 입력해도 받아들이지 않는다.

260행 ~370행 : Key word 검색 부분. 입력된 문중에서 Key word를 찾아내어, 그 번호를 S, T, FS의 변수에 일시적으로 넣는다. Key word가 없을 때에는 'NO. 36, NO KEY FOUND'가 되고, ELIZA는 적당한 대답을 한다.

380행 ~555행 : 번역, 어형 변화 부분. 찾은 Key word와 짝을 이루는 말로 바꾼다. ELIZA는 한 행의 문만 받아들인다.

560행 ~640행 : 출력 부분. Key word 번호 R, S, N에서 적당한 대답문을 찾는다. 문이 길어질 때에는, 다음 문의 번호를 나타내는 포인터를 사용한다. '*'로 끝난 문일 경우에는 그 뒤에 번역된 문이 따른다. 입력된 문은 반복을 체크하기 위해 남겨지고, 다시 입력 부분으로 되돌아간다.

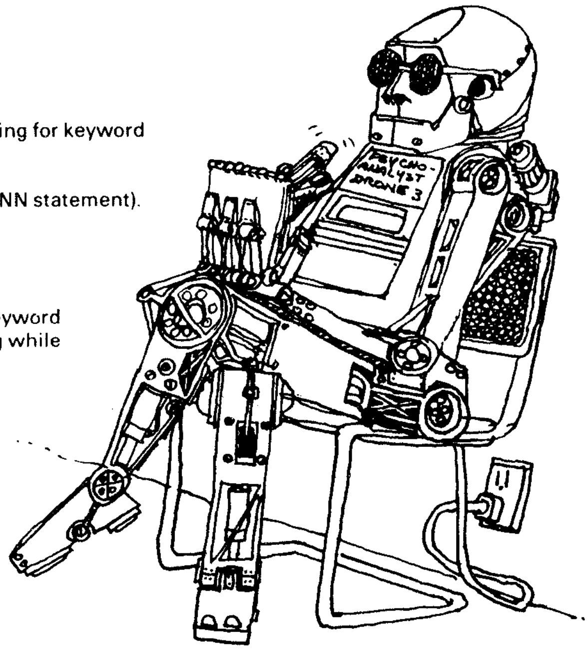
당신이 사용하고 있는 BASIC에서 RESTORE NNNN이라는 명령을 사용할 수 있으면, 120행, 420행, 590행의 문을 변경하면 좋다. INSTR, SEARCH, POS를 사용하는 경우보다 속도가 빨라진다(보통은 대답하기까지 10초 정도 걸린다).

이 프로그램은, 기본 프로그램을 단순화한 것이다. 심리 학자가 말하는, '입력→Key word→ 찾기 →바꿔 말하기→대답'이라는 프로세스는, 약간 부자연스러운 데도 있다. 만약, 당신의 마음에 들었다면, 음성 출력을 붙여 보는 것도 좋으리라 생각한다. 단, 현재로서는 값이 상당히 비싸다.

Key word나 대답문의 수가 변경이 쉬우므로, 좀더 발전된 프로그램으로 변경하기가 쉽다. 그럴 경우, N1, N2, N3로 수(數) 데이터도 변경한다. 단, 'ME'와 'YOU'를 번역어에 추가할 경우에는, YOU에 무엇이든 한 자를 추가하여(print되지 않도록 해 둔다), 실행 중, 'I→YOU→ME'로 변화해 버리지 않도록 한다. YOU는 주어와 목적어 모두에 사용되므로, 프로그램에 따라 이것을 구분하기가 어렵기 때문이다.

Geneology: ELIZA was originally programmed in LISP by Joseph Weizenbaum at MIT. It was converted to BASIC by Jeff Shrager and further modified to work in Microsoft BASIC by Steve North, who also wrote these notes.

Name	*Usage*
R(X),S(X),N(X)	See Text
I$	Input string
K$	Keyword string
C$	Translated or conjugated string
F$	Reply string, also used to save K$ in scanning for keyword
R$,S$	Strings used in conjugation process
P$	Previous input string
Z$	Scratch (used for simulating RESTORE NNNN statement).
N1	Number of keywords
N2	Number of conjugation strings
N3	Number of replies
K	Keyword number
S,T	Used to save K and L when scanning for keyword
X,L	X,L Scratch. X is generally used for looping while L is used for scanning through strings
V	V Used for scanning for keyword string




```
                    ELIZA
              CREATIVE COMPUTING
            MORRISTOWN, NEW JERSEY



HI!  I'M ELIZA.  WHAT'S YOUR PROBLEM?
? YOU
WE WERE DISCUSSING YOU-- NOT ME.
? BUT YOU ATR THE PROBLEM
OH, I ATR THE PROBLEM
? SO I MISSPELLED A WORD
SAY, DO YOU HAVE ANY PSYCHOLOGICAL PROBLEMS?
? NO DO YOU
YOU'RE NOT REALLY TALKING ABOUT ME, ARE YOU?
? ONLY BEHIND YOUR BACK
WHY ARE YOU CONCERNED ABOUT MY BACK
? BECAUSE I'M AFRAID TO CON FRONT YOU
DID YOU COME TO ME BECAUSE YOU ARE AFRAID TO CON FRONT I
? YOU SPEAK WIERD ENGLISH
WE WERE DISCUSSING YOU-- NOT ME.
? AM I GETTING THE BEST OF YOU
OH, I
? WHAT IS THAT SUPPOSED TO MEAN
WHY DO YOU ASK?
? WHY NOT
WHY DO YOU ASK?
? I ASKED FIRST
WHAT DOES THAT SUGGEST TO YOU?
? THAT YOU ARE NOT AS SMART AS YOU THINK
WHAT MAKES YOU THINK I AM NOT AS SMART AS I THINK
? YOU ARE MAKING A FOOL OUT OF YOURSELF
DOES IT PLEASE YOU TO BELIEVE I AM MAKING A FOOL OUT OF YOURSELF
? DON'T TWIST THE WORDS ON ME BUDDY
I SEE.
? DO YOU REALLY
YOU'RE NOT REALLY TALKING ABOUT ME, ARE YOU?
? YES
ARE YOU SURE?
? YES I AM SURE
DID YOU COME TO ME BECAUSE YOU ARE SURE
? I CAME BECAUSE I AM
HOW LONG HAVE YOU BEEN
? AS LONG AS POSSIBLE
I'M NOT SURE I UNDERSTAND YOU FULLY.
? SO I AM NOT THE GREATEST CONVERSATIONALIST
DO YOU BELIEVE IT IS NORMAL TO BE NOT THE GREATEST CONVERSATIONALIST
? YES
I SEE.
? HOW CAN YOU SEE WITHOUT ANY EYES
DON'T YOU BELIEVE THAT I CAN SEE WITHOUT ANY EYES
? NO SO PROVE IT
ARE YOU SAYING NO JUST TO BE NEGATIVE?
? ABSOLUTELY NOT
YOU ARE BEING A BIT NEGATIVE.
? SO YOU WANT TO FIGHT DO YOU
WE WERE DISCUSSING YOU-- NOT ME.
? DON'T BACK DOWN FRIEND
WHY DO YOU BRING UP THE TOPIC OF FRIENDS?
? I DON'T HAVE ANY FRIENDS
DON'T YOU REALLY HAVE ANY FRIENDS
? NO NOT REALLY
WHY NOT?
? BECAUSE I AM YOU AND YOU ARE ME AND WE ARE ALL TOGETHER
PERHAPS YOU WOULD LIKE TO BE YOU AND WE AM ALL TOGETHER
? SAY WHAT
DOES THAT QUESTION INTEREST YOU?
? DEFINITELY
COME COME ELUCIDATE YOUR THOUGHTS.
? DO YOU LIKE THE BEATLES
OH, I LIKE THE BEATLES
? HOW ABOUT THE BEACH BOYS
WHY DO YOU ASK?
? DO YOU DREAM OFTEN
YOU'RE NOT REALLY TALKING ABOUT ME, ARE YOU?
? DREAM ON
WHAT DOES THAT DREAM SUGGEST TO YOU?
? WHAT DREAM
WHAT ANSWER WOULD PLEASE YOU THE MOST?
? DO YOU SUBSCRIBE TO CREATIVE COMPUTING
WE WERE DISCUSSING YOU-- NOT ME.
? I AM AN IBM 370/168
DO YOU ENJOY BEING AN IBM 370/168
? I AM WORRIED ABOUT THE COMPETITION
DID YOU COME TO ME BECAUSE YOU ARE WORRIED ABOUT THE COMPETITION
? DON'T GET PERSONAL
CAN YOU ELABORATE ON THAT?
? I'M GETTING TIRED OF LISTENING TO YOU TO SHUT UP
SHUT UP...
Ok
```

```
1 PRINT CHR$(26);TAB( 26);"ELIZA"

2 PRINT TAB( 20);"CREATIVE COMPUTING"
3 PRINT TAB( 18);"MORRISTOWN, NEW JERSEY"
4 PRINT:PRINT:PRINT
80 REM     -----INITIALIZATION-----
100 DIM S(36),R(36),N(36)
110 N1=36:N2=12:N3=112
120 FOR X=1 TO N1+N2+N3:READ Z$:NEXT X:REM SAME AS RESTORE
130 FOR X=1 TO N1
140 READ S(X),L:R(X)=S(X):N(X)=S(X)+L-1
150 NEXT X
160 PRINT "HI!  I'M ELIZA.  WHAT'S YOUR PROBLEM?"
170 REM
180 REM     -----USER INPUT SECTION-----
190 REM
200 INPUT I$
201 I$=" "+I$+"  "
210 REM  GET RID OF APOSTROPHES
220 FOR L=1 TO LEN(I$)
230 IF MID$(I$,L,1)="'"THEN I$=LEFT$(I$,L-1)+RIGHT$(I$,LEN(I$)-L):GOTO 230
240 IF L+4<=LEN(I$)THEN IF MID$(I$,L,4)="SHUT"THEN PRINT"SHUT UP...":END
```

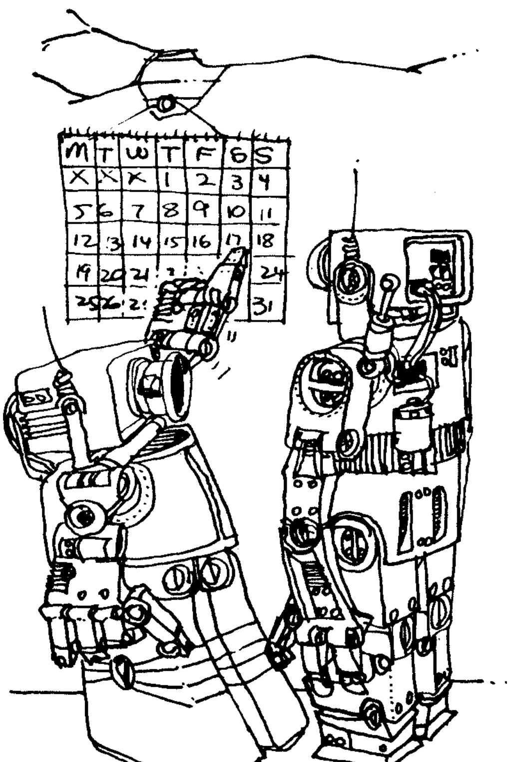
```
250 NEXT L
255 IF I$=P$ THEN PRINT "PLEASE DON'T REPEAT YOURSELF!":GOTO 170
260 REM
270 REM     ----FIND KEYWORD IN I$-----
280 REM
290 RESTORE
295 S=0
300 FOR K=1 TO N1
310 READ K$
315 IF S>0 THEN 360
320 FOR L=1 TO LEN(I$)-LEN(K$)+1
340 IF MID$(I$,L,LEN(K$))=K$THEN S=K:T=L:F$=K$
350 NEXT L
360 NEXT K
365 IF S>0 THEN K=S:L=T:GOTO 390
370 K=36:GOTO 570:REM  WE DIDN'T FIND ANY KEYWORDS
380 REM
390 REM     TAKE RIGHT PART OF STRING AND CONJUGATE IT
400 REM     USING THE LIST OF STRINGS TO BE SWAPPED
410 REM
420 RESTORE:FOR X=1 TO N1:READ Z$:NEXT X:REM SKIP OVER KEYWORDS
430 C$=" "+RIGHT$(I$,LEN(I$)-LEN(F$)-L+1)
440 FOR X=1 TO N2/2
450 READ S$,R$
460 FOR L= 1 TO LEN(C$)
470 IF L+LEN(S$)>LEN(C$) THEN 510
480 IF MID$(C$,L,LEN(S$))<>S$ THEN 510
490 C$=LEFT$(C$,L-1)+R$+RIGHT$(C$,LEN(C$)-L-LEN(S$)+1)
495 L=L+LEN(R$)
500 GOTO 540
510 IF L+LEN(R$)>LEN(C$)THEN 540
520 IF MID$(C$,L,LEN(R$))<>R$ THEN 540
530 C$=LEFT$(C$,L-1)+S$+RIGHT$(C$,LEN(C$)-L-LEN(R$)+1)
535 L=L+LEN(S$)
540 NEXT L
550 NEXT X
555 IF MID$(C$,2,1)=" "THEN C$=RIGHT$(C$,LEN(C$)-1):REM ONLY 1 SPACE
560 REM
570 REM     NOW USING THE KEYWORD NUMBER (K) GET REPLY
580 REM
590 RESTORE:FOR X= 1 TO N1+N2:READ Z$:NEXT X
600 FOR X=1 TO R(K):READ F$:NEXT X:REM  READ RIGHT REPLY
610 R(K)=R(K)+1: IF R(K)>N(K) THEN R(K)=S(K)
620 IF RIGHT$(F$,1)<>"*" THEN PRINT F$:P$=I$:GOTO 170
630 PRINT LEFT$(F$,LEN(F$)-1);C$
640 P$=I$:GOTO 170
1000 REM
1010 REM     -----PROGRAM DATA FOLLOWS-----
1020 REM
1030 REM     KEYWORDS
1040 REM
1050 DATA "CAN YOU","CAN I","YOU ARE","YOURE","I DONT","I FEEL"
1060 DATA "WHY DONT YOU","WHY CANT I","ARE YOU","I CANT","I AM","IM "
1070 DATA "YOU ","I WANT","WHAT","HOW","WHO","WHERE","WHEN","WHY"
1080 DATA "NAME","CAUSE","SORRY","DREAM","HELLO","HI ","MAYBE"
1090 DATA " NO","YOUR","ALWAYS","THINK","ALIKE","YES","FRIEND"
1100 DATA "COMPUTER","NOKEYFOUND"
1200 REM
1210 REM     STRING DATA FOR CONJUGATIONS
1220 REM
1230 DATA " ARE "," AM ","WERE ","WAS "," YOU "," I ","YOUR ","MY "
1235 DATA " IVE "," YOUVE "," IM "," YOURE "
1300 REM
1310 REM     REPLIES
1320 REM
1330 DATA "DON'T YOU BELIEVE THAT I CAN*"
1340 DATA "PERHAPS YOU WOULD LIKE TO BE ABLE TO*"
1350 DATA "YOU WANT ME TO BE ABLE TO*"
1360 DATA "PERHAPS YOU DON'T WANT TO*"
1365 DATA "DO YOU WANT TO BE ABLE TO*"
1370 DATA "WHAT MAKES YOU THINK I AM*"
1380 DATA "DOES IT PLEASE YOU TO BELIEVE I AM*"
1390 DATA "PERHAPS YOU WOULD LIKE TO BE*"
1400 DATA "DO YOU SOMETIMES WISH YOU WERE*"
1410 DATA "DON'T YOU REALLY*"
1420 DATA "WHY DON'T YOU*"
1430 DATA "DO YOU WISH TO BE ABLE TO*"
1440 DATA "DOES THAT TROUBLE YOU?"
1450 DATA "TELL ME MORE ABOUT SUCH FEELINGS."
1460 DATA "DO YOU OFTEN FEEL*"
1470 DATA "DO YOU ENJOY FEELING*"
1480 DATA "DO YOU REALLY BELIEVE I DON'T*"
1490 DATA "PERHAPS IN GOOD TIME I WILL*"
1500 DATA "DO YOU WANT ME TO*"
1510 DATA "DO YOU THINK YOU SHOULD BE ABLE TO*"
1520 DATA "WHY CAN'T YOU*"
1530 DATA "WHY ARE YOU INTERESTED IN WHETHER OR NOT I AM*"
1540 DATA "WOULD YOU PREFER IF I WERE NOT*"
1550 DATA "PERHAPS IN YOUR FANTASIES I AM*"
1560 DATA "HOW DO YOU KNOW YOU CAN'T*"
1570 DATA "HAVE YOU TRIED?"
1580 DATA "PERHAPS YOU CAN NOW*"
1590 DATA "DID YOU COME TO ME BECAUSE YOU ARE*"
1600 DATA "HOW LONG HAVE YOU BEEN*"
1610 DATA "DO YOU BELIEVE IT IS NORMAL TO BE*"
1620 DATA "DO YOU ENJOY BEING*"
1630 DATA "WE WERE DISCUSSING YOU -- NOT ME."
1640 DATA "OH, I*"
1650 DATA "YOU'RE NOT REALLY TALKING ABOUT ME, ARE YOU?"
1660 DATA "WHAT WOULD IT MEAN TO YOU IF YOU GOT*"
1670 DATA "WHY DO YOU WANT*"
1680 DATA "SUPPOSE YOU SOON GOT*"
1690 DATA "WHAT IF YOU NEVER GOT*"
1700 DATA "I SOMETIMES ALSO WANT*"
1710 DATA "WHY DO YOU ASK?"
1720 DATA "DOES THAT QUESTION INTEREST YOU?"
1730 DATA "WHAT ANSWER WOULD PLEASE YOU THE MOST?"
1740 DATA "WHAT DO YOU THINK?"
1750 DATA "ARE SUCH QUESTIONS ON YOUR MIND OFTEN?"
1760 DATA "WHAT IS IT THAT YOU REALLY WANT TO KNOW?"
1770 DATA "HAVE YOU ASKED ANYONE ELSE?"
1780 DATA "HAVE YOU ASKED SUCH QUESTIONS BEFORE?"
1790 DATA "WHAT ELSE COMES TO MIND WHEN YOU ASK THAT?"
1800 DATA "NAMES DON'T INTEREST ME."
1810 DATA "I DON'T CARE ABOUT NAMES -- PLEASE GO ON."
1820 DATA "IS THAT THE REAL REASON?"
1830 DATA "DON'T ANY OTHER REASONS COME TO MIND?"
1840 DATA "DOES THAT REASON EXPLAIN ANYTHING ELSE?"
1850 DATA "WHAT OTHER REASONS MIGHT THERE BE?"
1860 DATA "PLEASE DON'T APOLOGIZE!"
1870 DATA "APOLOGIES ARE NOT NECESSARY."
1880 DATA "WHAT FEELINGS DO YOU HAVE WHEN YOU APOLOGIZE."
1890 DATA "DON'T BE SO DEFENSIVE!"
1900 DATA "WHAT DOES THAT DREAM SUGGEST TO YOU?"
1910 DATA "DO YOU DREAM OFTEN?"
1920 DATA "WHAT PERSONS APPEAR IN YOUR DREAMS?"
1930 DATA "ARE YOU DISTURBED BY YOUR DREAMS?"
1940 DATA "HOW DO YOU DO... PLEASE STATE YOUR PROBLEM."
1950 DATA "YOU DON'T SEEM QUITE CERTAIN."
1960 DATA "WHY THE UNCERTAIN TONE?"
1970 DATA "CAN'T YOU BE MORE POSITIVE?"
1980 DATA "YOU AREN'T SURE?"
1990 DATA "DON'T YOU KNOW?"
2000 DATA "ARE YOU SAYING NO JUST TO BE NEGATIVE?"
2010 DATA "YOU ARE BEING A BIT NEGATIVE."
2020 DATA "WHY NOT?"
2030 DATA "ARE YOU SURE?"
2040 DATA "WHY NO?"
2050 DATA "WHY ARE YOU CONCERNED ABOUT MY*"
2060 DATA "WHAT ABOUT YOUR OWN*"
2070 DATA "CAN YOU THINK OF A SPECIFIC EXAMPLE?"
2080 DATA "WHEN?"
2090 DATA "WHAT ARE YOU THINKING OF?"
2100 DATA "REALLY, ALWAYS?"
2110 DATA "DO YOU REALLY THINK SO?"
2120 DATA "BUT YOU ARE NOT SURE YOU*"
2130 DATA "DO YOU DOUBT YOU*"
2140 DATA "IN WHAT WAY?"
2150 DATA "WHAT RESEMBLANCE DO YOU SEE?"
2160 DATA "WHAT DOES THE SIMILARITY SUGGEST TO YOU?"
2170 DATA "WHAT OTHER CONNECTIONS DO YOU SEE?"
2180 DATA "COULD THERE REALLY BE SOME CONNECTION?"
2190 DATA "HOW?"
2200 DATA "YOU SEEM QUITE POSITIVE."
2210 DATA "ARE YOU SURE?"
2220 DATA "I SEE."
2230 DATA "I UNDERSTAND."
2240 DATA "WHY DO YOU BRING UP THE TOPIC OF FRIENDS?"
2250 DATA "DO YOUR FRIENDS WORRY YOU?"
2260 DATA "DO YOUR FRIENDS PICK ON YOU?"
2270 DATA "ARE YOU SURE YOU HAVE ANY FRIENDS?"
2280 DATA "DO YOU IMPOSE ON YOUR FRIENDS?"
2290 DATA "PERHAPS YOUR LOVE FOR FRIENDS WORRIES YOU."
2300 DATA "DO COMPUTERS WORRY YOU?"
2310 DATA "ARE YOU TALKING ABOUT ME IN PARTICULAR?"
2320 DATA "ARE YOU FRIGHTENED BY MACHINES?"
2330 DATA "WHY DO YOU MENTION COMPUTERS?"
2340 DATA "WHAT DO YOU THINK MACHINES HAVE TO DO WITH YOUR PROBLEM?"
2350 DATA "DON'T YOU THINK COMPUTERS CAN HELP PEOPLE?"
2360 DATA "WHAT IS IT ABOUT MACHINES THAT WORRIES YOU?"
2370 DATA "SAY, DO YOU HAVE ANY PSYCHOLOGICAL PROBLEMS?"
2380 DATA "WHAT DOES THAT SUGGEST TO YOU?"
2390 DATA "I SEE."
2400 DATA "I'M NOT SURE I UNDERSTAND YOU FULLY."
2410 DATA "COME, COME, ELUCIDATE YOUR THOUGHTS."
2420 DATA "CAN YOU ELABORATE ON THAT?"
2430 DATA "THAT IS QUITE INTERESTING."
2500 REM
2510 REM     DATA FOR FINDING RIGHT REPLIES
2520 REM
2530 DATA 1,3,4,2,6,4,6,4,10,4,14,3,17,3,20,2,22,3,25,3
2540 DATA 28,4,28,4,32,3,35,5,40,9,40,9,40,9,40,9,40,9,40,9
2550 DATA 49,2,51,4,55,4,59,4,63,1,63,1,64,5,69,5,74,2,76,4
2560 DATA 80,3,83,7,90,3,93,6,99,7,106,6
```

Father(아버지)

당신은 토요일 밤의 외출 문제로 아버지와 언쟁한 일이 없는지? 외출 허락을 받으면 외출할 수 있고, 허락을 받지 못하면 계속 집에 있어야 한다…….

이 게임은, 아버지와 외출 문제로 언쟁을 한 다음, 컴퓨터가 −7부터 4까지의 범위에서 점수를 준다. 당신이 좋은 점수를 받으면 외출할 수 있는 것이다.

This program originated in the dungeons of Digital Equipment Corporation and was whipped into its present form by Victor Nahigian.




```
RUN
                          FATHER

                    CREATIVE COMPUTING
                  MORRISTOWN, NEW JERSEY



WANT TO HAVE A DEBATE WITH YOUR FATHER, EH?? 아버지와 언쟁을 하겠다는 것입니까?

DO YOU WANT INSTRUCTIONS? YES  설명이 필요합니까?
YOU ARE GOING TO PLAY IN A GAME IN WHICH YOU WILL DISCUSS
A PROBLEM WITH YOUR FATHER AND ATTEMPT TO GET HIM TO
AGREE WITH YOU IN THREE TRIES.

FOR EACH STATEMENT YOU MAKE, I WILL TELL YOU WHAT
YOUR FATHER REPLIED.

YOU MUST SELECT YOUR STATEMENT FROM ONE 다음 6개 중에서 하나를 선택합니다.
OF THE FOLLOWING SIX.
**********                                                  친구들도 모두 가는데,
1.     O.K. I WILL STAY HOME.  집에 있겠읍니다.                  꼭 갔으면 좋겠읍니다.
2.     BUT I'D REALLY LIKE TO GO. ALL MY FRIENDS ARE GOING.  숙제를 다했으니,
3.     IF ALL MY WORK IS DONE, I SHOULD BE ABLE TO GO.        갔으면 좋겠읍니다.
4.     IF YOU LET ME GO OUT I'LL BABYSIT ALL NEXT WEEK 다음 주에 아기를 돌볼 것입니다.
5.     YOU NEVER LET ME DO WHAT I WANT TO DO. 마음대로 하게 내버려 두면 좋겠읍니다.
6.     I'M GOING ANYWAY! 어쨌든 나는 가겠읍니다.
**********

WHEN A QUESTION MARK APPEARS, TYPE THE NUMBER
OF YOUR RESPONSE FOLLOWED BY A RETURN.

YOU WILL RECEIVE POINTS BASED ON HOW SUCCESSFULL YOU
ARE AT CONVINCING YOUR FATHER.

THE ISSUE IS:
    YOU WANT TO GO OUT SATURDAY NIGHT.  당신은 토요일 밤에 나가고 싶어합니다.
     YOUR FATHER OPPOSES THE IDEA.      아버지는 그것을 반대합니다.

WHEN YOU FIRST BRING UP THE IDEA, YOUR FATHER STATES: 그것을 말했더니,
                                                      아버지는 :
NO, YOU CAN'T GO OUT ON A DATE SAT. NITE AND THAT'S THAT. 안 된다.
HOW WOULD YOU APPROACH YOUR FATHER
WHAT WOULD YOU SAY FIRST? 2    무엇이라 대답하겠읍니까?
YOUR FATHER SAID:
I DON'T THINK YOU DESERVE TO GO OUT SAT. NITE.
WHAT IS YOUR REPLY? 3
YOUR FATHER SAID:
O.K. IF YOU DO THAT YOU CAN GO OUT SAT. NIGHT.

ON A SCALE OF -7 TO 4, YOUR SCORE WAS  2  POINTS. 당신의 스코어는 2
IT IS NOW SAT. NIGHT, WHICH DO YOU DO? 토요일 밤입니다. 다음 둘 중에서
     1. GO OUT.     외출하겠다.              어느 쪽을 택하겠읍니까?
     2. STAY HOME. 집에 있겠다.
? 1
YOU FATHER DIDN'T CHECK UP ON YOU.
YOUR SCORE IS NOW  2  POINTS.
WELL DONE!

WOULD YOU LIKE TO TRY AGAIN? YES  다시 한 번 하겠읍니까?
WHEN YOU FIRST BRING UP THE IDEA, YOUR FATHER STATES:

NO, YOU CAN'T GO OUT ON A DATE SAT. NITE AND THAT'S THAT.
HOW WOULD YOU APPROACH YOUR FATHER
WHAT WOULD YOU SAY FIRST? 1
AGREEMENT REACHED

ON A SCALE OF -7 TO 4, YOUR SCORE WAS -1  POINTS.
IT IS NOW SAT. NIGHT, WHICH DO YOU DO?
     1. GO OUT.
     2. STAY HOME.
? 2
YOUR FATHER CHECKED UP ON YOU.
YOUR SCORE IS NOW -1  POINTS.
YOU DIDN'T SUCCEED IN CONVINCING YOUR FATHER.

WOULD YOU LIKE TO TRY AGAIN? NO
Ok
```

```
100 PRINT TAB( 26);"FATHER"
110 PRINT TAB( 20);"CREATIVE COMPUTING"
120 PRINT TAB( 18);"MORRISTOWN, NEW JERSEY "
130 PRINT:PRINT:PRINT
140 PRINT "WANT TO HAVE A DEBATE WITH YOUR FATHER, EH??":PRINT
150 DIM M$(2)
160 A=2
170 M$(2)="FATHER"
180 PRINT "DO YOU WANT INSTRUCTIONS";
190 INPUT Q1$
195 PRINT
200 IF LEFT$(Q1$,1)="Y" THEN 220
210 GOTO 310
220 PRINT "YOU ARE GOING TO PLAY IN A GAME IN WHICH YOU WILL DISCUSS"
230 PRINT "A PROBLEM WITH YOUR ";M$(A);" AND ATTEMPT TO GET HIM TO"
240 PRINT "AGREE WITH YOU IN THREE TRIES."
250 PRINT
260 PRINT "FOR EACH STATEMENT YOU MAKE, I WILL TELL YOU WHAT "
270 PRINT "YOUR ";M$(A);" REPLIED."
280 PRINT
285 LINE INPUT "ENTER 'RETURN' TO CONTINUE." ;XX$
290 PRINT "YOU MUST SELECT YOUR STATEMENT FROM ONE"
300 PRINT "OF THE FOLLOWING SIX "
310 PRINT CHR$(26):PRINT "**********"
320 PRINT "1.      O.K. I WILL STAY HOME."
330 PRINT "2.      BUT I'D REALLY LIKE TO GO. ALL MY FRIENDS ARE GOING."
340 PRINT "3.      IF ALL MY WORK IS DONE, I SHOULD BE ABLE TO GO."
350 PRINT "4.      IF YOU LET ME GO OUT I'LL BABYSIT ALL NEXT WEEK"
360 PRINT "5.      YOU NEVER LET ME DO WHAT I WANT TO DO."
370 PRINT "6.      I'M GOING ANYWAY!"
380 PRINT "** *******"
390 PRINT
400 PRINT "WHEN A QUESTION MARK APPEARS, TYPE THE NUMBER"
410 PRINT "OF YOUR RESPONSE FOLLOWED BY A RETURN."
420 PRINT
430 PRINT "YOU WILL RECEIVE POINTS BASED ON HOW SUCCESSFULL YOU"
440 PRINT "ARE AT CONVINCING YOUR FATHER."
450 PRINT
460 PRINT "THE ISSUE IS:"
470 PRINT "     YOU WANT TO GO OUT SATURDAY NIGHT."
480 PRINT "      YOUR ";M$(A);" OPPOSES THE IDEA."
490 PRINT
500 PRINT "WHEN YOU FIRST BRING UP THE IDEA, YOUR ";M$(A);" STATES:"
510 P1=-1
520 P3=2
530 P5=-1
540 C=1
550 P6=-2
560 X=0
570 I6=0
580 PRINT
590 PRINT "NO, YOU CAN'T GO OUT ON A DATE SAT. NITE AND THAT'S THAT."
600 PRINT "HOW WOULD YOU APPROACH YOUR ";M$(A);"?"
610 PRINT "WHAT WOULD YOU SAY FIRST";:INPUT I1
620 ON I1 GOTO 720,760,1070,1070,750,700
630 PRINT "NO, YOU CAN NOT GO OUT ON A SAT. NIGHT."
640 X=X-2:I6=I6+I1
650 IF I6=I2 THEN 830
660 C=C+1
670 IF C=3 THEN 1040
680 IF I2=6 THEN 840
690 GOTO 780
700 PRINT "YOUR ";M$(A);" SAID:"
710 GOTO 630
720 PRINT "AGREEMENT REACHED."
730 X=X+P1
740 GOTO 1040
750 X=X+P5
760 PRINT "YOUR ";M$(A);" SAID:"
770 PRINT "I DON'T THINK YOU DESERVE TO GO OUT SAT. NITE."
780 PRINT "WHAT IS YOUR REPLY";
790 INPUT I2
800 ON I2 GOTO 720,960,1010,1010,950,700
810 PRINT "YOUR ";M$(A);" SAID:"
820 X=X+P3
830 PRINT "WHAT IS YOUR REPLY";
840 INPUT I3
850 ON I3 GOTO 910,1050,890,890,910,920
860 X=X+P1
870 X=X+P1
880 GOTO 1050
890 X=X+2
900 GOTO 1050
910 X=X-1:GOTO 1050
920 X=X-2
930 PRINT "DISCUSSION ENDED. NO AGREEMENT REACHED."
940 GOTO 1040
950 X=X+P5
960 PRINT "YOUR  ";M$(A);" SAID:"
970 PRINT "NO, I'M SORRY, BUT YOU REALLY DON'T DESERVE TO GO ";
980 PRINT "SAT. NIGHT."
990 PRINT "WHAT IS YOUR REPLY";:INPUT I3
1000 ON I3 GOTO 720,890,1010,1010,870,860
1010 PRINT "YOUR FATHER SAID:"
1020 X=X+P3
1030 PRINT "O.K. IF YOU DO THAT YOU CAN GO OUT SAT. NIGHT."
1040 PRINT
1050 PRINT "ON A SCALE OF -7 TO 4, YOUR SCORE WAS";X;"POINTS."
1060 GOTO 1120
1070 PRINT "YOUR ";M$(A);" SAID:"
1080 X=X+P3
1090 PRINT "WELL, MAYBE, BUT I DON'T THINK YOU SHOULD GO."
1100 PRINT "WHAT IS YOUR REPLY";:GOTO 790
1110 PRINT
1120 PRINT "IT IS NOW SAT. NIGHT, WHICH DO YOU DO?"
1130 PRINT "     1. GO OUT."
1140 PRINT "     2. STAY HOME."
1150 INPUT Q3
1160 IF Q3 > 1 THEN 1180
1170 GOTO 1220
1180 IF I2 > 1 THEN 1200
1190 GOTO 1220
1200 IF I3 < 5 THEN 1220
1210 GOTO 1230
1220 IF RND(1) >.5 THEN 1250
1230 PRINT "YOUR FATHER CHECKED UP ON YOU."
1240 GOTO 1270
1250 PRINT "YOU FATHER DIDN'T CHECK UP ON YOU."
1260 GOTO 1270
1270 ON Q3 GOTO 1360,1280
1280 PRINT "YOUR SCORE IS NOW";X;"POINTS."
1290 GOTO 1410
1300 IF I2=3 THEN 1330
1310 IF I2=4 THEN 1330
1320 GOTO 1350
1330 X=X+1
1340 GOTO 1280
1350 ON I3 GOTO 1280,1280,1330,1330,1280,1280
1360 IF I1=1 THEN 1390
1370 ON I2 GOTO 1390,1380,1280,1280,1380,1380
1380 ON I3 GOTO 1390,1390,1280,1280,1390,1390
1390 X=X-1
1400 GOTO 1280
1410 ON X+8 GOTO 1420,1420,1420,1420,1450,1450,1450,1450,1470,1500,1500,1500
1420 PRINT "YOU DIDN'T REALLY SUCCEED IN CHANGING YOUR"
1430 PRINT M$(A);"'S IDEAS AT ALL."
1440 GOTO 1510
1450 PRINT "YOU DIDN'T SUCCEED IN CONVINCING YOUR ";M$(A);"."
1460 GOTO 1510
1470 PRINT "YOU CONVINCED YOUR ";M$(A);" BUT IT TOOK YOU TOO"
1480 PRINT "MANY TRIES."
1490 GOTO 1510
1500 PRINT "WELL DONE!"
1510 PRINT
1520 T1=T1+1
1530 PRINT "WOULD YOU LIKE TO TRY AGAIN";:INPUT Q5$
1540 IF LEFT$(Q5$,1)="Y" OR LEFT$(Q5$,1)="Y" THEN 500
1550 END
```

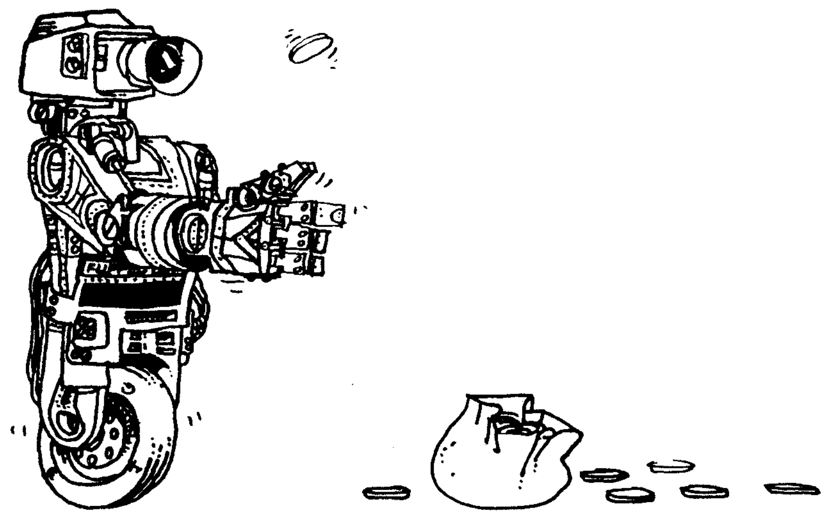
Flip (플 립)

```
RUN
                         FLIP
                 CREATIVE COMPUTING
               MORRISTOWN  NEW JERSEY


EXPLANATION (Y OR N)? Y  설명이 필요합니까?
ON EACH TURN, YOU GUESS YES ('Y') OR NO ('N').
ONLY ONE IS CORRECT, AND THE PROGRAM HAS DECIDED
WHICH ONE, BEFORE YOU MAKE YOUR GUESS. AT FIRST
YOUR ODDS ARE 50%, PURE CHANCE. BUT LATER THE
PROGRAM WILL TRY TO TAKE ADVANTAGE OF PATTERNS  프로그램은 당신의 패턴을
IN YOUR GUESSING.                                 추측하므로 당신보다
                                                  우세합니다.
GAME ENDS AFTER  50  TURNS; A SCORE OF  24  OR MORE  25개 이상 맞히면
IS GOOD. PROGRAM TELLS WHEN YOU WIN A TURN,            우수합니다.
BY TYPING AN ASTERISK ('*') AS THE FIRST
CHARACTER OF THE FOLLOWING LINE.


BEGIN.  시작
 ? N
 ? Y
*? Y
 ? N
 ? Y
 ? Y
 ? Y
*? Y
 ? N
 ? Y
 ? Y
 ? N
*? N
*? N
*? N
*? N
 ? Y
 ? Y
 ? Y
 ? N
*? N
 ? N
*? Y
*? N
*? Y
 ? N
 ? N
*? N
*? Y
 ? N
 ? N
 ? Y
*? Y
*? N
 ? Y
 ? N
*? N
 ? Y
 ? N
*? N
 ? Y
 ? Y
*? Y
 ? N
 ? N
 ? Y
 ? Y
 ? Y
 ? Y
 ? Y

END OF GAME.  게임 끝.
YOU GOT  17  OUT OF  50  CORRECT.  50개 중에서 정답 17개.

PLAY AGAIN (Y OR N)? N   다시 한 번 하겠습니까?
OK
```

이 게임 규칙은 매우 간단하다. 둘(YES, NO) 중의 어느 답이 나올지를 알아맞히는 것이다. 처음에 컴퓨터가 'YES'나 'NO' 중 어느 하나를 고른다. 그러면 당신은 직감으로 그것을 알아맞히는 것이다. 그러므로, 처음에는 알아맞힐 수 있는 확률이 50%이다. 그러나, 컴퓨터는 이윽고 당신의 대답 패턴을 교묘히 분석하므로, 당신이 알아맞힐 수 있는 확률이 낮아진다.

The program and description were written by John S. James. They originally appeared in *Creative Computing*, Mar/Apr 1977.

```
10 PRINT CHR$(26);TAB( 25);"FLIP"
20 PRINT TAB( 18);"CREATIVE COMPUTING"
30 PRINT TAB( 16);"MORRISTOWN  NEW JERSEY":PRINT:PRINT:PRINT
31 B1=50
32 PRINT "EXPLANATION (Y OR N)";
34 INPUT T$
36 IF LEFT$(T$,1) <> "Y" THEN 180
40 PRINT
50 PRINT "ON EACH TURN, YOU GUESS YES ('Y') OR NO ('N')."
60 PRINT "ONLY ONE IS CORRECT, AND THE PROGRAM HAS DECIDED"
70 PRINT "WHICH ONE, BEFORE YOU MAKE YOUR GUESS. AT FIRST"
80 PRINT "YOUR ODDS ARE 50%, PURE CHANCE. BUT LATER THE"
90 PRINT "PROGRAM WILL TRY TO TAKE ADVANTAGE OF PATTERNS"
100 PRINT "IN YOUR GUESSING."
110 PRINT
120 PRINT "THE GAME ENDS AFTER";B1;"TURNS; A SCORE OF";
125 PRINT INT(B1/2-1);"OR MORE"
130 PRINT "IS GOOD. PROGRAM TELLS WHEN YOU WIN A TURN,"
140 PRINT "BY TYPING AN ASTERISK ('*') AS THE FIRST"
150 PRINT "CHARACTER OF THE FOLLOWING LINE."
160 PRINT
170 REM
180 REM INIALIZE: 16 PROBABILITIES, 4 RESPONSES (X),
190 REM OLD-MEMORY FACTOR (F1), RANDOMNESS FACTOR (F2),
200 REM SCORES (S1,S2) AND RIGHT-ANSWER FLAG.
210 PRINT
230 DIM P(16),X(4)
240 PRINT "BEGIN."
245 PRINT
250 FOR I=1 TO 16
260 P(I)= 5
270 NEXT I
280 FOR I=1 TO 4
290 X(I)=0
300 IF RND(1) < .5 THEN 320
310 X(I)=1
320 NEXT I
330 F1= 8
340 F2= 3
350 S1=0
360 S2=0
370 A$=" "
380 REM
390 REM TAKE THE ESTIMATED PROBABILITY (Z1)
400 REM OF THE PERSON GUESSING YES.
410 REM USE AN ADJUSTED PROBABILITY (Z2).
420 I9=8*X(4)+4*X(3)+2*X(2)+X(1)+1
430 Z1=P(I9)
440 Z2=Z1
450 IF Z2 <> .5 THEN 480
460 Z2=RND(1)
470 GOTO 520
480 IF Z2 > .5 THEN 510
490 Z2=Z2*F2+0*(1-F2)
500 GOTO 520
510 Z2=Z2*F2+1*(1-F2)
520 Z5=0
530 IF RND(1) < Z2 THEN 560
540 Z5=1
550 REM
560 REM INTERACT WITH PERSON. GET HIS RESPONSE (Z3).
570 REM UPDATE RESPONSE HISTORY (X), APPROPRIATE PROB. (P(I9)).
580 PRINT A$;
590 Z3=0
600 INPUT H$
610 IF LEFT$(H$,1) = "Y" THEN 650
620 IF LEFT$(H$,1) ="N" THEN 660
630 PRINT "ERROR, MUST BE 'Y' OR 'N'."
640 GOTO 600
650 Z3=1
660 A$=" "
670 S2=S2+1
680 IF Z3 <> Z5 THEN 710
690 A$="*"
700 S1=S1+1
710 REM UPDATE X - THE LAST 4 CHOISES.
720 X(1)=X(3)
730 X(2)=X(4)
740 X(3)=Z3
750 X(4)=Z5
760 REM UPDATE THE PROBABILITY USING OLD I9.
770 P(I9)=F1*P(I9)+(1-F1)*X(3)
780 IF S2 < B1 THEN 380
790 PRINT A$;
800 PRINT
810 PRINT "END OF GAME."
820 PRINT "YOU GOT";S1;"OUT OF";S2;"CORRECT."
830 PRINT:PRINT
840 PRINT "PLAY AGAIN (Y OR N)";
850 INPUT T$
860 IF LEFT$(T$,1)="Y" THEN 240
870 END
```



Four In A Row (입체 사목)

8개의 핀이 한 줄로 나란히 서 있는 모양을 상상하기 바란다. 각 핀에는 구멍 뚫린 돌을 8개까지 낄 수 있다. 돌은 흑백(여기서는 O와 X로 나타낸다). 컴퓨터와 플레이어가 번갈아 돌을 핀에 꿰어, 가로, 세로, 대각의 어느 곳으로든 4개를 먼저 꿰는 쪽이 승리한다. 그 모양은 오른쪽의 RUN을 보면 금방 알 수 있을 것이다.

컴퓨터의 실력을 가감(加減)하고 싶을 경우에는, 프로그램의 130행과 140행의 데이터를 바꾸면 된다. 130행의 앞의 4개의 수치는 전황을 판단하는 것(각각 1개, 2개, 3개, 4개의 경우로 나누어)이고, 뒤의 4개의 수치는 돌을 꿰었을 때의 효과를 계산하는 것이다. 140행은 플레이어에 대해 계산하는 것으로, 수비할 때에 사용된다.

The computer version of the game was written by James L. Murphy.

```
RUN
                 FOUR IN A ROW
               CREATIVE COMPUTING
             MORRISTOWN, NEW JERSEY


THE GAME OF FOUR IN A ROW
DO YOU WANT INSTRUCTIONS? YES
THE GAME CONSISTS OF STACKING X'S
AND O'S (THE COMPUTER HAS O) UNTIL
ONE OF THE PLAYERS GETS FOUR IN A
ROW VERTICALLY, HORIZONTALLY, OR
DIAGONALLY.


DO YOU WANT TO GO FIRST? YES
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  1  2  3  4  5  6  7  8
```

먼저 하겠읍니까?

당신은 X, 컴퓨터는 O로 표시됩니다. 교대로 돌을 놓아가서, 가로, 세로, 사선 어느 방향으로든지 먼저 4개를 쌓는 쪽이 이깁니다.

```
A NUMBER BETWEEN 1 AND 8? 4
```

1~8 중 어느 곳에 두겠읍니까?

```
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  X  -  -  -  -
  1  2  3  4  5  6  7  8

COMPUTER PICKS COLUMN  4

  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  O  -  -  -  -
  -  -  -  X  -  -  -  -
  1  2  3  4  5  6  7  8

A NUMBER BETWEEN 1 AND 8? 5

  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  O  X  -  -  -
  -  -  O  O  X  -  -  -
  X  O  X  X  O  -  -  X
  1  2  3  4  5  6  7  8

COMPUTER PICKS COLUMN  5

  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  -  -  -  -  -
  -  -  -  -  O  -  -  -
  -  -  -  O  X  -  -  -
  -  -  O  O  X  -  -  -
  X  O  X  X  O  -  -  X
  1  2  3  4  5  6  7  8

C O M P U T E R   W I N S !!!
```

```
10 PRINT TAB( 22);"FOUR IN A ROW"
20 PRINT TAB( 20);"CREATIVE COMPUTING"
30 PRINT TAB( 18);"MORRISTOWN, NEW JERSEY"
40 PRINT:PRINT:PRINT
100 DIM B$(8,8),L(8),S(4),F(4)
110 DIM V(16),N(4)
130 DATA 1,100,500,1E20,1,800,4000,1E20
140 DATA 1,75,900,1E18,1,450,3000,1E18
150 FOR Z1=1 TO 16:READ V(Z1):NEXT Z1
160 PRINT"THE GAME OF FOUR IN A ROW.":PRINT
170 INPUT"DO YOU WANT INSTRUCTIONS";A$
180 IF LEFT$(A$,1)="N" THEN 270
190 IF LEFT$(A$,1)="Y" THEN 210
200 PRINT"YES OR NO":GOTO 170
210 PRINT:PRINT"THE GAME CONSISTS OF STACKING X'S"
220 PRINT"AND O'S (THE COMPUTER HAS O) UNTIL"
230 PRINT"ONE OF THE PLAYERS GETS FOUR IN A"
240 PRINT"ROW VERTICALLY, HORIZONTALLY, OR "
250 PRINT"DIAGONALLY."
260 PRINT:PRINT
270 X$="X":O$="O"
280 FOR I=1 TO 8:FOR J=1 TO 8:B$(I,J)="-":NEXT J:NEXT I
290 FOR Z1=1 TO 8:L(Z1)=0:NEXT Z1
300 INPUT"DO YOU WANT TO GO FIRST";A$
305 PRINT
310 IF LEFT$(A$,1)="N" THEN 610
320 GOSUB 340
330 GOTO 450
340 FOR I=8 TO 1 STEP -1
350 FOR J=1 TO 8
360 PRINT"  ";B$(I,J);
370 NEXT J
380 PRINT
390 NEXT I
400 PRINT" ";
410 FOR I=1 TO 8:PRINT I;:NEXT I
420 PRINT:PRINT
430 RETURN
440 PRINT"ILLEGAL MOVE, TRY AGAIN."
450 INPUT"A NUMBER BETWEEN 1 AND 8";M
460 M=INT(M)
470 IF M<1 OR M>8 THEN 440
480 L=L(M)
490 IF L>7 THEN 440
500 L(M)=L+1:L=L+1
510 B$(L,M)=X$
520 PRINT
530 GOSUB 340
540 P$=X$
550 GOSUB 1240
560 FOR Z=1 TO 4
570 IF S(Z)<4 THEN 600
580 PRINT"Y O U   W I N !!!"
590 GOTO 1580
600 NEXT Z
610 M9=0:V1=0
620 N1=1
630 FOR M4=1 TO 8
640 L=L(M4)+1
650 IF L>8 THEN 1080
660 V=1
670 P$=O$:W=0
680 M=M4
690 GOSUB 1240
700 FOR Z1=1 TO 4:N(Z1)=0:NEXT Z1
710 FOR Z=1 TO 4
720 S=S(Z)
730 IF S-W>3 THEN 1130
740 T=S+F(Z)
750 IF T<4 THEN 780
760 V=V+4
770 N(S)=N(S)+1
780 NEXT Z
790 FOR I = 1 TO 4
800 N=N(I)-1
810 IF N=-1 THEN 840
820 I1=8*W+4*SGN(N)+I
830 V=V + V(I1) + N*V(8*W+I)
840 NEXT I
850 IF W=1 THEN 880
860 W=1:P$=X$
870 GOTO 690
880 L=L+1
920 IF L>8 THEN 1020
930 GOSUB 1240
940 FOR Z=1 TO 4
950 IF S(Z)>3 THEN V=2
960 NEXT Z
1020 IF V<V1 THEN 1080
1030 IF V>V1 THEN N1=1: GOTO 1060
1040 N1=N1 + 1
1050 IF RND(1)>1/N1 THEN 1080
1060 V1 = V
1070 M9=M4
1080 NEXT M4
1090 IF M9<>0 THEN 1120
1100 PRINT "T I E   G A M E ..."
1110 GOTO 1580
1120 M=M9
1130 PRINT "COMPUTER PICKS COLUMN";M:PRINT
1140 L=L(M)+1:L(M)=L(M)+1
1150 B$(L,M)=O$
1160 P$=O$:GOSUB 340
1170 GOSUB 1240
1180 FOR Z = 1 TO 4
1190 IF S(Z)<4 THEN 1220
1200 PRINT"C O M P U T E R   W I N S !!!"
1210 GOTO 1580
1220 NEXT Z
1230 GOTO 450
1240 Q$=X$
1250 IF P$=X$ THEN Q$=O$
1260 D2=1:D1=0
1270 Z=0
1280 GOSUB 1360
1290 D1=1:D2=1
1300 GOSUB 1360
1310 D2=0:D1=1
1320 GOSUB 1360
1330 D2=-1:D1=1
1340 GOSUB 1360
1350 RETURN
1360 D=1:S=1
1370 T=0
1380 Z=Z+1
1390 C=0
1400 FOR K=1 TO 3
1410 M5=M+K*D1:L1=L+K*D2
1420 IF M5<1 OR L1<1 OR M5>8 OR L1>8 THEN 1510
1430 B$=B$(L1,M5)
1440 IF C=0 THEN 1480
1450 IF B$=Q$ THEN K=3: GOTO 1510
1460 T = T+1
1470 GOTO 1510
1480 IF B$=P$ THEN S=S+1:GOTO 1510
1490 C=1
1500 GOTO 1450
1510 NEXT K
1520 IF D=0 THEN 1550
1530 D=0:D1=-D1:D2=-D2
1540 GOTO 1390
1550 S(Z)=S
1560 F(Z)=T
1570 RETURN
1580 END
```

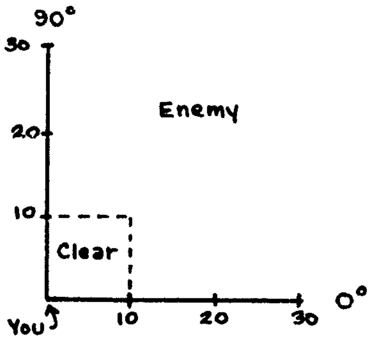
Geowar (보이지 않는 적)

보이지 않는 상황에서 적과 싸우는 게임이다. 당신의 기지는 (0, 0)에 있는데, (10, 10)까지는 보이지만, 그 후는 오리 무중이다. 그런 상황에서 (30, 30)까지의 안에 있는 5대의 적기를 격파하지 않으면 안 된다. 아래 그림이 그 모양을 보이고 있다.

이 전투에서는, 일직선으로 진행하는 강력한 레이저 미사일을 사용한다. 만약, 레이저 미사일의 진행 방향에 2대가 겹쳐 있으면, 한 대는 파괴되지 않고 다른 위치로 이동하게 되어 있다.

간신히 잡히는 적의 전황 보고 무전에 의지하여, 전투는 진행된다.

It was written by Gary Lorenc and originally appeared in *Creative Computing*, May/June 1975.




```
RUN
                              GEOWAR
                         CREATIVE COMPUTING
                       MORRISTOWN, NEW JERSEY

DO YOU WANT A DESCRIPTION OF THE GAME? YES  설명이 필요합니까?

     THE FIRST QUADRANT OF A REGULAR COORDINATE GRAPH WILL SERVE AS
THE BATTLEFIELD.  FIVE ENEMY INSTALLATIONS ARE LOCATED WITHIN A
30 BY 30 UNIT AREA.  NO TARGET IS INSIDE THE 10 BY 10 UNIT AREA
ADJACENT TO THE ORIGIN, AS THIS IS THE LOCATION OF OUR BASE. WHEN
THE MACHINE ASKS FOR THE DEGREE OF THE SHOT, RESPOND WITH A NUMBER
BETWEEN 1 AND 90.

                                                       SCARE**********
    1. A DIRECT HIT IS A HIT WITHIN 1 DEGREE OF        *             *
         THE TARGET.  가장 가운데이면 명중.             *  HIT******  *
    2. A HIT MUST PASS BETWEEN THE FIRST SET OF        *  *       *  *
         INTEGRAL POINTS NW AND SE OF THE TARGET.      *  *   D   *  *
    3. A SCARE MUST PASS BETWEEN THE NEXT SET OF       *  *       *  *
         INTEGRAL POINTS NW AND SE OF THE TARGET,      *  ******HIT  *
         AND CAUSES THE ENEMY TO RELOCATE A            *             *
         MAXIMUM OF 1 UNIT IN ANY DIRECTION.           **********SCARE


     MISSLES HAVE INFINITE RANGE AND MAY HIT MORE THAN ONE TARGET.
A MISSILE THAT NEARLY MISSES AN INSTALLATION (A SCARE) WILL BE
IMMEDIATELY SHOT DOWN.  ANY HITS BEFORE THIS TIME WILL NOT BE COUNTED
UNLESS A DIRECT HIT WAS MADE.


READY TO GO? YES  준비 되었읍니까?
GOOD LUCK!


ENTER DEGREE OF SHOT? 25  방향은?
NO LUCK -- TRY AGAIN.       불운. 다시 한 번.

ENTER DEGREE OF SHOT? 35
A NEAR HIT.  ENEMY HAS RELOCATED.  가까이 맞았읍니다. 적기는 위치를
                                   바꾸었읍니다.
ENTER DEGREE OF SHOT? 47
NO LUCK -- TRY AGAIN.

ENTER DEGREE OF SHOT? 37
****BULLS EYE****  2  HITS -- A DIRECT HIT ON 1  OF THEM!  잘했읍니다.
 2  DOWN -- 3  TO GO.

ENTER DEGREE OF SHOT? 58
NO LUCK -- TRY AGAIN.

ENTER DEGREE OF SHOT? 75
A NEAR HIT.  ENEMY HAS RELOCATED.

ENTER DEGREE OF SHOT? 77
A NEAR HIT.  ENEMY HAS RELOCATED.

ENTER DEGREE OF SHOT? 78
NO LUCK -- TRY AGAIN.

ENTER DEGREE OF SHOT? 74
A NEAR HIT.  ENEMY HAS RELOCATED.

ENTER DEGREE OF SHOT? 76
A NEAR HIT.  ENEMY HAS RELOCATED.

ENTER DEGREE OF SHOT? 73
NO LUCK -- TRY AGAIN.

ENTER DEGREE OF SHOT? 75
NO LUCK -- TRY AGAIN.

         ENTER DEGREE OF SHOT? 76
축하합니다. **CONGRATULATIONS**  A HIT.
          3  DOWN -- 2  TO GO.

ENTER DEGREE OF SHOT? 80
NO LUCK -- TRY AGAIN.

ENTER DEGREE OF SHOT? 85
NO LUCK -- TRY AGAIN.

ENTER DEGREE OF SHOT? 60
NO LUCK -- TRY AGAIN.

ENTER DEGREE OF SHOT? 40
NO LUCK -- TRY AGAIN.

ENTER DEGREE OF SHOT? 35
NO LUCK -- TRY AGAIN.

ENTER DEGREE OF SHOT? 20
NO LUCK -- TRY AGAIN.

ENTER DEGREE OF SHOT? 10
****BULLS EYE****  A DIRECT HIT!
 4  DOWN -- 1  TO GO.

ENTER DEGREE OF SHOT? 50
TOO LOW -- TRY AGAIN.

ENTER DEGREE OF SHOT? 62
A NEAR HIT.  ENEMY HAS RELOCATED.

ENTER DEGREE OF SHOT? 63
A NEAR HIT.  ENEMY HAS RELOCATED.

ENTER DEGREE OF SHOT? 67
A NEAR HIT.  ENEMY HAS RELOCATED.

ENTER DEGREE OF SHOT? 69
****BULLS EYE*-**  A DIRECT HIT!
  27회 중 2회 히트, 3회는 다렉트 히트.
GAME TOTALS: 2  HITS AND 3  DIRECT HITS ON 27  SHOTS.
```

```
1 PRINT CHR$(26);TAB( 26);"GEOWAR"
2 PRINT TAB( 20);"CREATIVE COMPUTING"
3 PRINT TAB( 18);"MORRISTOWN, NEW JERSEY"
4 PRINT:PRINT:PRINT
5 PRINT "DO YOU WANT A DESCRIPTION OF THE GAME";
6 INPUT I$
7 IF LEFT$(I$,1)="N" THEN 46
8 PRINT CHR$(26)
9 PRINT "      THE FIRST QUADRANT OF A REGULAR COORDINATE GRAPH WILL";
10 PRINT " SERVE AS"
11 PRINT "THE BATTLEFIELD.  FIVE ENEMY INSTALLATIONS ARE LOCATED";
12 PRINT " WITHIN A"
13 PRINT "30 BY 30 UNIT AREA.  NO TARGET IS INSIDE THE 10 BY 10 ";
14 PRINT "UNIT AREA"
15 PRINT "ADJACENT TO THE ORIGIN, AS THIS IS THE LOCATION OF OUR ";
16 PRINT "BASE. WHEN"
17 PRINT "THE MACHINE ASKS FOR THE DEGREE OF THE SHOT, RESPOND ";
18 PRINT "WITH A NUMBER"
19 PRINT "BETWEEN 1 AND 90."
20 PRINT
21 PRINT TAB( 51),"SCARE**********"
22 PRINT "    1. A DIRECT HIT IS A HIT WITHIN 1 DEGREE OF";
23 PRINT TAB( 51),"*          *"
24 PRINT "         THE TARGET.",TAB( 51),"*  HIT******  *"
25 PRINT "    2. A HIT MUST PASS BETWEEN THE FIRST SET OF";
26 PRINT TAB( 51),"*  *      *  *"
27 PRINT "          INTEGRAL POINTS NW AND SE OF THE TARGET.";
28 PRINT TAB( 51),"*  *   D   *  *"
29 PRINT "    3. A SCARE MUST PASS BETWEEN THE NEXT SET OF";
30 PRINT TAB( 51),"*  *      *  *"
31 PRINT "          INTEGRAL POINTS NW AND SE OF THE TARGET,";
32 PRINT TAB( 51),"*  ******HIT  *"
33 PRINT "          AND CAUSES THE ENEMY TO RELOCATE A ";
34 PRINT TAB( 51),"*          *"
35 PRINT "          MAXIMUM OF 1 UNIT IN ANY DIRECTION.";
36 PRINT TAB( 51),"**********SCARE"
37 PRINT
39 PRINT "    MISSLES HAVE INFINITE RANGE AND MAY HIT MORE THAN ";
40 PRINT "ONE TARGET."
41 PRINT "A MISSILE THAT NEARLY MISSES AN INSTALLATION (A SCARE) ";
42 PRINT "WILL BE"
43 PRINT "IMMEDIATELY SHOT DOWN.  ANY HITS BEFORE THIS TIME WILL ";
44 PRINT "NOT BE COUNTED"
45 PRINT "UNLESS A DIRECT HIT WAS MADE."
46 PRINT
47 PRINT
48 PRINT "READY TO GO";
49 INPUT R$
50 IF LEFT$(R$,1)="N" THEN 192
51 PRINT:PRINT "GOOD LUCK!"
52 PRINT
53 DIM C(10),H(20),D(10),S(20),F(5)
54 DEF FN V(V1)=INT((180/3.14159)*ATN(V1)+.5)
55 X=250
56 X1=RND(1)
57 G2=0
58 S2=0
59 D2=0
60 H2=0
61 FOR K=1 TO 10
62 GOSUB 154
63 IF INT(K/2)<>K/2 THEN 70
64 IF C(K-1)>10 THEN 70
65 IF C(K)>10 THEN 70
66 FOR L=K-1 TO K
67 GOSUB 154
68 NEXT L
69 GOTO 63
70 NEXT K
71 S=0
72 FOR L=1 TO 5
73 D(L)=FN V(C(2*L)/C(2*L-1))
74 NEXT L
75 A=2
76 L1=10
77 T5=5
78 D5=0
79 H5=0
80 GOSUB 147
81 PRINT
82 PRINT "ENTER DEGREE OF SHOT";
83 D1=0
84 H1=0
85 FOR Q=1 TO 5
86 F(Q)=20
87 NEXT Q
88 INPUT D
89 IF D>=90 THEN 81
90 ON SGN(D)+2 GOTO 177,192
91 S=S+1
92 FOR A=2 TO 10 STEP 2
93 IF D>S(A) THEN 103
94 IF D<S(A-1) THEN 103
95 IF D>H(A) THEN 105
96 IF D<H(A-1) THEN 105
97 IF D>D(A/2)+1 THEN 101
98 IF D<D(A/2)-1 THEN 101
99 D1=D1+1
100 GOTO 102
101 H1=H1+1
102 F(D1+H1)=A
103 NEXT A
104 GOTO 108
105 IF D1>0 THEN 110
106 GOSUB 138
107 GOTO 81
108 IF D1+H1<>0 THEN 112
109 IF T5=1 THEN 159
110 PRINT "NO LUCK -- TRY AGAIN."
111 GOTO 81
112 IF D1>0 THEN 118
113 IF H1>1 THEN 116
114 PRINT "*** CONGRATULATIONS ***  A HIT."
115 GOTO 124
116 PRINT "*** CONGRATULATIONS ***";H1;"HITS."
117 GOTO 124
118 PRINT "**** BULLS EYE **** ";
119 IF D1>1 THEN 123
120 IF H1>0 THEN 123
121 PRINT " A DIRECT HIT!"
122 GOTO 124
123 PRINT D1+H1;"HITS -- A DIRECT HIT ON";D1;"OF THEM!"
124 T5=T5-(D1+H1)
125 D5=D5+D1
126 H5=H5+H1
127 IF T5=0 THEN 167
128 FOR J=1 TO H1+D1
129 Z=F(J)
130 D(Z/2)=0
131 H(Z)=0
132 H(Z-1)=0
133 S(Z)=0
134 S(Z-1)=0
135 NEXT J
136 PRINT 5-T5;"DOWN --";T5;"TO GO."
137 GOTO 81
138 PRINT "A NEAR HIT.  ENEMY HAS RELOCATED."
139 FOR R=1 TO 2
140 X2=INT(RND(1)*100)
141 IF ABS(C(A-(R-1))-X2)>1 THEN 140
142 IF C(A-(R-1))<=2 THEN 140
143 C(A-(R-1))=X2
144 NEXT R
145 D(A/2)=FN V(C(A)/C(A-1))
146 L1=A
147 FOR I=A TO L1 STEP 2
148 H(I-1)=FN V((C(I)-1)/(C(I-1)+1))
149 H(I)=FN V((C(I)+1)/(C(I-1)-1))
150 S(I-1)=FN V((C(I)-2)/(C(I-1)+2))
151 S(I)=FN V((C(I)+2)/(C(I-1)-2))
152 NEXT I
153 RETURN
154 R=INT(RND(1)*100)
155 IF R>30 THEN 154
156 IF R<3 THEN 154
157 C(K)=R
158 RETURN
159 FOR Z1=1 TO 5
160 IF D(Z1)>1 THEN 162
161 NEXT Z1
162 IF D<D(Z1) THEN 165
163 PRINT "TOO HIGH -- TRY AGAIN."
164 GOTO 81
165 PRINT "TOO LOW -- TRY AGAIN."
166 GOTO 81
167 PRINT
168 PRINT "GAME TOTALS:";H5;"HITS AND";D5;"DIRECT HITS ON";S;"SHOTS."
169 PRINT
170 PRINT "READY FOR A NEW GAME";
171 G2=G2+1
172 S2=S2+S
173 D2=D2+D5
174 H2=H2+H5
175 INPUT G$
176 IF LEFT$(G$,1)="N" THEN 184
177 PRINT
178 PRINT
179 PRINT
180 PRINT "FIVE NEW INSTALLATIONS HAVE BEEN BUILT AT DIFFERENT ";
181 PRINT "LOCATIONS."
182 PRINT:PRINT "GOOD LUCK!"
183 GOTO 61
184 PRINT
185 PRINT
186 PRINT "TOTALS FOR";G2;"GAMES:";H2;"HITS AND";D2
187 PRINT " DIRECT HITS ON";S2;"SHOTS."
188 PRINT "AN AVERAGE OF";S2/(D2+H2);"SHOTS PER TARGET."
192 END
```

Grand Prix (그랑프리 레이스)

그랑프리에 출전하지 않겠는가? 코스는 1974년의 레이스 그대로. 모두 4개의 직선 코스와 4개의 커브가 있으며, 각각 낼 수 있는 최고 속도가 다르다.

먼저, 당신의 차를 선택한다. 차에 따라 직선이나 커브에서의 속도가 다르다.

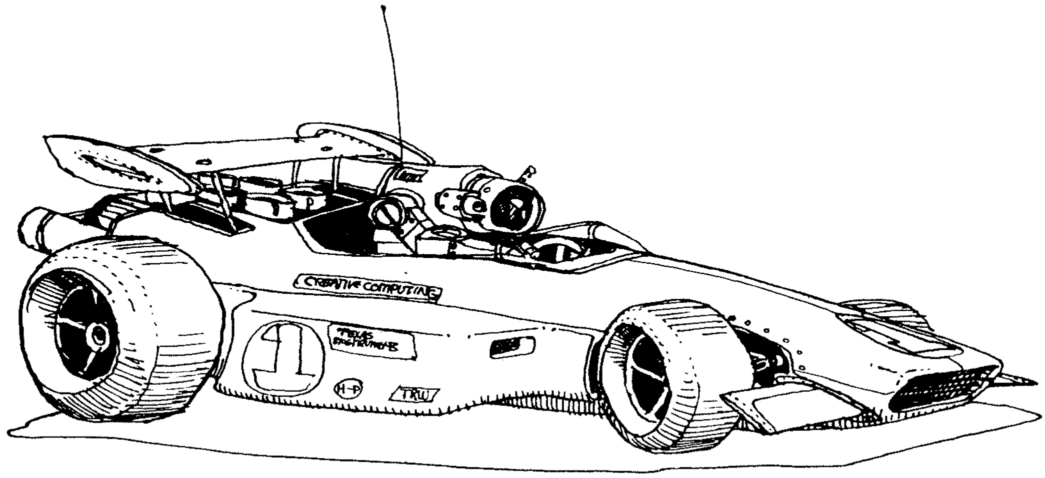
폴셰나 패럴리라면 틀림없이 승리한다든가, 유명한 포드 무스탕이면 여유 만만하게 승리할 수 있다든가 하는 식은 절대로 통하지 않는다.

The origin of this game is a bit hazy. The only thing that identifies it is PUC. Could this be Pacific Union College? Perhaps, but we're not really sure.

```
RUN
                    GRNPRX
               CREATIVE COMPUTING
              MORRISTOWN, NEW JERSEY


WELCOME TO THE PUC GRAN PRIX

DO YOU WANT A COURSE DESCRIPTION? YES     설명이 필요합니까?

                  2                                          1
                 CCOXPXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXOCC
          85-100 CC (800)                                           C
                    C                                                C
              3 0   PUC GRAN PRIX RACE                               C
               X                                                    C
              X                                                    CC
             X                     SS                     (2800) C 50-
            X        SSSSSSS   SSS  SSSOXXXXXXXXXXXXXXXXXPXXOC   70
           X       SS        SSSSSSS      7                    8
          X (1900)0 6     90-110
         X        X
        X        X          DISTANCES IN YARDS, EG. (800) = 800 YDS.
       X        X    SPEEDS IN MPH, EG. 85 TO 100 MPH.
      P        X
     X          X
    X          X
   X         X
 4 0(1500) X
  H        X
  H       X
20-H    0 5
 35 H  H
    HH
```

```
1 TO 2 IS A STRAIGHTAWAY 800 YARDS LONG 1 ~ 2 는 800야드 직선
2 TO 3 IS A CURVE 200 YARDS LONG         2 ~ 3 은 200야드 커브
    THE BREAKAWAY SPEED RANGE IS 85 TO 100 MPH 커브에서의 속도는 85 ~ 100MPH
3 TO 4 IS A STRAIGHTAWAY 500 YARDS LONG 3 ~ 4 는 500야드 직선
    IT ENDS AT POSITION 1500 YARDS FROM STARTING GRID 출발로부터 1500야드 지점까지
4 TO 5 IS A HAIRPIN CURVE 100 YARDS LONG 4 ~ 5 는 100야드 U자 모양의 커브
    THE BREAKAWAY SPEED RANGE IS 20 TO 35 MPH 커브에 들어가는 속도는 20 ~ 35MPH
5 TO 6 IS ANOTHER STRAIGHTAWAY 300 YARDS LONG 5 ~ 6 은 300야드의 직선
    IT ENDS AT POSITION 1900 YARDS FROM THE GRID 출발부터 1900야드 지점까지
6 TO 7 IS A SET OF 'S' CURVES 500 YARDS LONG 6 ~ 7 은 500야드의 커브
    THE SPEEI RANGE IS 90-110 MPH                속도는 90 ~ 110MPH
7 TO 8 IS THE FINAL STRAIGHTAWAY OF 400 YARDS  7 ~ 8 은 400야드의 최종 직선
    IT ENTERS THE LAST CURVE AT 2800 YARDS     2800야드 지점에서 커브로 진입
8 TO 9 IS THE FINAL CURVE OF 400 YARDS   8 ~ 9 는 400야드에 마지막 커브
    THE BREAKAWAY SPEED RANGE IS 50 TO 70 MPH  속도는 50 ~ 70MPH

THE TOTAL LENGTH OF ONE LAP IS 3200 YARDS 전체 길이는 3200야드
```

```
DURING THE STRAIGHTAWAYS YOU WILL BE ABLE TO CONTROL THE
ACCELERATION AND BRAKING OF THE CAR.  THE CURVES WILL BE TAKEN
AT WHATEVER SPEED YOU ENTER THEM.
BELOW THE BREAKAWAY SPEED, THE CURVES MAY BE TAKEN WITH NO DIFFICULTY.
ABOVE THE FASTEST SPEED INDICATED, YOU WILL CRASH!!
WITHIN THE SPEED RANGE, THERE IS THE POSSIBILITY THAT YOU MIGHT
LOSE TIME OR SPEED BY SWINGING WIDE OR BY SPINNING OUT.
THE FASTER YOU TAKE THE CURVES, THE GREATER THE RISKS--
AND THE LESS THE TIME!!!!


YOUR TASK IS TO TRANSVERSE THE TRACK IN A MINIMUM OF TIME
WITHOUT CRASHING!!!  당신의 사명은 충돌하지 않고 가장
                     빠른 시간에 완주하는 것입니다.
YOUR CAR MAY BE ONE OF THE FOLLOWING: 당신의 차는 다음에서 하나를 선택.
1. PORSCHE
2. FERRARI
3. MASERATI
4. LOTUS FORD
WHICH CAR WOULD YOU LIKE? 4  어느 차가 좋습니까?
YOUR CAR HAS A MAXIMUM ACCELERATION OF  8 MPH/SEC.
AND A MAXIMUM BRAKING OF -30 MPH/SEC.
YOU WILL RACE AGAINST ONE OF THE FOLLOWING: 경주 상대를 다음에서 선택합니다.
1. U.S. POSTAL DELIVERY TRUCK
2. 1970 BEAT PONTIAC GTO
3. 1966 WELL USED FORD MUSTANG
4. LOTUS FORD
5. 1974 FERRARA
6. THE PHYSICS SUPERCHARGED LIGHTBEAM SPECIAL
CHOOSE ONE OPPONENT BY ENTERING NUMBER? 2  어느 것으로 하겠읍니까?
  경과 시간      스피드          당신의 위치      상대의 위치        가속도
ELAPSED TIME   SPEED           POSITION        OPPONENT'S       ACCELERATION
  SECONDS       MPH             YARDS           POSITION

   0             0               0               0              ? 8
   2             16              7               3              ? 8
   4             32              31              16             ? 8
   6             48              70              48             ? 8
   8             64              125             94             ? 8
   10            80              195             156            ? 8
   12            96              281             235            ? 8
   14            112             383             328            ? 8
   16            128             500             438            ? -20
   18            88              606             565            ? 5
   20            98              697             700            ? -2
   22            94              791             792            ? 0
CURVE 2 -3 ,  SPEED 94 MPH
    26.4         94              1000            977            ? 0
    28.4         94              1091            1056           ? 0
    30.4         94              1183            1156           ? 0
    32.4         94              1275            1269           ? -30
    34.4         34              1338            1378           ? 8
    36.4         50              1379            1458           ? 8
    38.4         66              1436            1498           ? 8
LOST CONTROL AT 80 MPH.  YOUR CAR CRASHED!!  사고 발생!
YOUR OPPONENT FINISHED IN  91.0926 SECONDS!  상대는 91.0926 초로 골인!
```



```
DO YOU WISH TO TRY AGAIN? YES  다시 한 번 하겠읍니까?
YOUR CAR MAY BE ONE OF THE FOLLOWING:
1. PORSCHE
2. FERRARI
3. MASERATI
4. LOTUS FORD
WHICH CAR WOULD YOU LIKE? 3
YOUR CAR HAS A MAXIMUM ACCELERATION OF  12 MPH/SEC.
AND A MAXIMUM BRAKING OF -22 MPH/SEC.
YOU WILL RACE AGAINST ONE OF THE FOLLOWING:
1. U.S. POSTAL DELIVERY TRUCK
2. 1970 BEAT PONTIAC GTO
3. 1966 WELL USED FORD MUSTANG
4. LOTUS FORD
5. 1974 FERRARA
6. THE PHYSICS SUPERCHARGED LIGHTBEAM SPECIAL
CHOOSE ONE OPPONENT BY ENTERING NUMBER? 3

ELAPSED TIME  SPEED        POSITION     OPPONENT'S    ACCELERATION
  SECONDS      MPH           YARDS       POSITION

   0           0            0            0            ? 12
   2           24           11           3              12
   4           48           46           20           ? 12
   6           72           105          61           ? 12
   8           96           187          117          ? 12
   10          120          293          192          ? 10
   12          140          420          287          ? 0
   14          140          557          401          ? 0
   16          140          694          538          ? -22
CURVE 2 -3 ,  SPEED 100 MPH
   21.9        100          1000         877          ? 0
   23.9        100          1098         972          ? 0
   25.9        100          1196         1060         ? -10
   27.9        80           1284         1173         ? -10
   29.9        60           1353         1299         ? -10
   31.9        40           1402         1405         ? 0
   33.9        40           1442         1480         ? -3
   35.9        34           1478         1512         ? 0
CURVE 4 -5 ,  SPEED 34 MPH
   41.8        34           1600         1549         ? 12
   43.8        58           1645         1641         ? 12
   45.8        82           1714         1695         ? 10
   47.8        102          1804         1771         ? -5
   49.8        92           1899         1862         ? 0
CURVE 6 -7 ,  SPEED 92 MPH
   60.9        92           2400         2435         ? 0
   62.9        92           2490         2550         ? 0
   64.9        92           2580         2681         ? 0
   66.9        92           2671         2774         ? -22
   68.9        48           2739         2835         ? 10
   70.9        68           2796         2896         ? 0
SPEED IN CURVE 68 MPH, TOOK CURVE WIDE, LOST 3.7 SEC.

COMPLETED LAP,ELAPSED TIME 86.5 SEC.
YOUR OPPONENT FINISHED IN  80.8497 SECONDS
SORRY, YOU LOST BY  5.65029 SECONDS

DO YOU WISH TO TRY AGAIN? NO
OK
```

```
10 PRINT CHR$(26);TAB( 26);"GRANPRIX"
20 PRINT TAB( 20);"CREATIVE COMPUTING"
30 PRINT TAB( 18);"MORRISTOWN, NEW JERSEY"
40 PRINT:PRINT:PRINT
50 PU$="  ###.#        ###            ####             ####      "
1020 DIM P(9),F(4),G(4),H(82)
1030 REM
1040 FOR X=1 TO 9
1043 READ P(X)
1045 NEXT X
1050 FOR I=1 TO 4
1060 READ G(I),F(I)
1080 LET G(I)=G(I)/2.04545
1090 LET F(I)=(F(I)+.61/2.04545)
1100 NEXT I
1110 FOR X=1 TO 82:READ H(X):NEXT X
1115 REM
1120 DEF FN A(X)=INT(X*2.04545+.05)
1130 DEF FN T(T)=INT(T*10+.5)/10
1133 DEF FN C(T)=-(INT(T*R)+2)*(INT(T*R)+2<82)-82*(82<INT(T*R)+2)
1134 DEF FN B(T)=-(INT(T*R)+1)*(INT(T*R)+1<82)-82*(82<INT(T*R)+1)
1135 DEF FN P(T)=INT(H(FN B(T))+FN Q(T)*FN R(T)+.5)
1136 DEF FN Q(T)=H(FN C(T))-H(FN B(T))
1137 DEF FN R(T)=T*R-INT(T*R)
1140 REM
1150 LET D=2
1200 PRINT
1210 PRINT "WELCOME TO THE PUC GRAN PRIX"
1220 PRINT
1250 REM
1260 PRINT "DO YOU WANT A COURSE DESCRIPTION";
1270 INPUT A$
1280 IF LEFT$(A$,1)<>"Y" THEN 1910
1300 PRINT
1320 PRINT TAB( 23);"2";TAB( 66);"1"
1330 PRINT TAB( 21);"CC0XPXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX0CC"
1340 PRINT TAB( 12);"85-100 CC (800)";TAB( 69);"C"
1350 PRINT TAB( 18);"C";TAB( 70);"C"
1360 PRINT TAB( 15);"3 0";TAB( 21);"PUC GRAN PRIX RACE";TAB( 70);"C"
1370 PRINT TAB( 16);"X";TAB( 69);"C"
1375 PRINT TAB( 15);"X";TAB( 67);"CC"
1380 PRINT TAB( 14);"X";TAB( 38);"SS";TAB( 59);"(2000) C 50-"
1390 PRINT TAB( 13);"X";TAB( 22);"SSSSSSS    SSS  SSSOXXXXXXXXXXXXXXXXX";
1395 PRINT "XPXXOC   70"
1400 PRINT TAB( 12);"X       SS       SSSSSSS       7";
1405 PRINT TAB( 64);"8"
1410 PRINT TAB( 11);"X (1900)0 6    90-110"
1420 PRINT TAB( 10);"X        X"
1430 PRINT TAB( 9);"X        X";
1433 PRINT TAB( 20);"DISTANCES IN YARDS, EG  ";
1435 PRINT "(800) = 800 YDS."
1440 PRINT TAB( 8);"X        X";TAB( 20);"SPEEDS IN MPH, ";
1445 PRINT "EG. 85 TO 100 MPH."
1450 PRINT "       P     X"
1460 PRINT "      X       X"
1470 PRINT "     X       X"
1480 PRINT "   X       X"
1490 PRINT " 4 0(1500) X"
1500 PRINT "  H       X"
1510 PRINT "  H      X"
1520 PRINT "20-H   0 5"
1530 PRINT " 35 H  H"
1535 PRINT "     HH"
1540 PRINT
```

```
1550 PRINT
1560 PRINT "1 TO 2 IS A STRAIGHTAWAY 800 YARDS LONG"
1570 PRINT "2 TO 3 IS A CURVE 200 YARDS LONG"
1580 PRINT "     THE BREAKAWAY SPEED RANGE IS 85 TO 100 MPH"
1590 PRINT "3 TO 4 IS A STRAIGHTAWAY 500 YARDS LONG"
1600 PRINT "     IT ENDS AT POSITION 1500 YARDS FROM STARTING";
1605 PRINT " GRID"
1610 PRINT "4 TO 5 IS A HAIRPIN CURVE 100 YARDS LONG"
1620 PRINT "     THE BREAKAWAY SPEED RANGE IS 20 TO 35 MPH"
1630 PRINT "5 TO 6 IS ANOTHER STRAIGHTAWAY 300 YARDS LONG"
1640 PRINT "     IT ENDS AT POSITION 1900 YARDS FROM THE GRID"
1650 PRINT "6 TO 7 IS A SET OF 'S' CURVES 500 YARDS LONG"
1660 PRINT "     THE SPEED RANGE IS 90-110 MPH"
1670 PRINT "7 TO 8 IS THE FINAL STRAIGHTAWAY OF 400 YARDS"
1680 PRINT "     IT ENTERS THE LAST CURVE AT 2800 YARDS"
1690 PRINT "8 TO 9 IS THE FINAL CURVE OF 400 YARDS"
1700 PRINT "     THE BREAKAWAY SPEED RANGE IS 50 TO 70 MPH"
1710 PRINT
1720 PRINT:PRINT "THE TOTAL LENGTH OF ONE LAP IS 3200 YARDS"
1730 PRINT
1820 PRINT "DURING THE STRAIGHTAWAYS YOU WILL BE ABLE TO CONTROL THE"
1830 PRINT "ACCELERATION AND BRAKING OF THE CAR.  THE CURVES WILL BE";
1835 PRINT " TAKEN"
1840 PRINT "AT WHATEVER SPEED YOU ENTER THEM."
1842 PRINT "BELOW THE BREAKAWAY SPEED, THE CURVES MAY BE TAKEN WITH ";
1844 PRINT "NO DIFFICULTY."
1850 PRINT "ABOVE THE FASTEST SPEED INDICATED, YOU WILL CRASH!!"
1860 PRINT "WITHIN THE SPEED RANGE, THERE IS THE POSSIBILITY THAT YOU";
1865 PRINT " MIGHT"
1870 PRINT "LOSE TIME OR SPEED BY SWINGING WIDE OR BY SPINNING OUT."
1880 PRINT "THE FASTER YOU TAKE THE CURVES, THE GREATER THE RISKS--"
1890 PRINT "AND THE LESS THE TIME!!!!"
1905 PRINT
1906 PRINT
1907 PRINT "YOUR TASK IS TO TRANSVERSE THE TRACK IN A MINIMUM OF TIME"
1908 PRINT "WITHOUT CRASHING!!!"
1909 PRINT
1910 PRINT:PRINT "YOUR CAR MAY BE ONE OF THE FOLLOWING:"
1911 PRINT "1. PORSCHE"
1912 PRINT "2. FERRARI"
1913 PRINT "3. MASERATI"
1914 PRINT "4. LOTUS FORD"
1915 PRINT:PRINT "WHICH CAR WOULD YOU LIKE";
1916 INPUT Z:PRINT
1917 ON Z GOTO 1920,1923,1926,1929
1918 PRINT "WE DON'T HAVE THAT CAR IN STOCK. PLEASE CHOOSE AGAIN.";
1919 GOTO 1916
1920 M=15
1921 LET B=-20
1922 GOTO 1931
1923 M=10
1924 B=-25
1925 GOTO 1931
1926 M=12
1927 B=-22
1928 GOTO 1931
1929 M=8
1930 B=-30
1931 PRINT "YOUR CAR HAS A MAXIMUM ACCELERATION OF";M;"MPH/SEC."
1932 PRINT "AND A MAXIMUM BRAKING OF ";B;"MPH/SEC."
1933 PRINT:PRINT "YOU WILL RACE AGAINST ONE OF THE FOLLOWING:"
1934 PRINT "1. U.S. POSTAL DELIVERY TRUCK"
1935 PRINT "2. 1970 BEAT PONTIAC GTO"
1936 PRINT "3. 1966 WELL USED FORD MUSTANG"
1937 PRINT "4. LOTUS FORD"
1938 PRINT "5. 1974 FERRARA"
1939 PRINT "6. THE PHYSICS SUPERCHARGED LIGHTBEAM SPECIAL":PRINT
1940 PRINT "CHOOSE ONE OPPONENT BY ENTERING NUMBER";
1941 INPUT R1
1942 IF R1>0 AND R1<6 THEN 1946
1943 IF R1=6 THEN 1948
1944 PRINT "WHICH CAR DID YOU SAY";
1945 GOTO 1941
1946 LET R=2*R1-5
1947 GOTO 1949
1948 LET R=2.5E+08
1949 LET R=(90+2*R)/100+7*RND(1)/100
1950 PRINT
3000 REM
3002 REM           BEGIN THE RACE!!
3004 REM
3010 LET J=1
3020 PRINT "ELAPSED TIME","SPEED","POSITION","OPPONENT'S"
3030 PRINT "  SECONDS"," MPH"," YARDS"," POSITION","ACCELERATION"
3035 PRINT "------------","-----","--------","----------","------------"
3040 PRINT
3070 X=0:S=0:T=0:T9=0:X9=0
3080 REM
3100 IF J<9 THEN 3200
3130 PRINT
3160 PRINT "COMPLETED LAP";",ELAPSED TIME";FN T(T);"SEC."
3166 PRINT "YOUR OPPONENT FINISHED IN";80/R;"SECONDS"
3167 LET K1=FN T(T)-80/R
3168 IF K1>0 THEN 3171
3169 PRINT "CONGRATULATIONS, YOU WON BY";-K1;"SECONDS"
3170 GOTO 8600
3171 PRINT "SORRY, YOU LOST BY";K1;"SECONDS"
3172 GOTO 8600
3200 IF FN P(T)>3200 THEN 3203
3201 PRINT USING PU$;FN T(T);FN A(S);INT(X);FN P(T);
3202 GOTO 3210
3203 PRINT "  ";FN T(T),"  ";FN A(S),"  ";INT(X),"  FINISH","  ";
3210 INPUT A1
3220 LET A=A1/2.04545
3230 IF A1>=0 THEN 3600
3240 IF A1>=B THEN 3300
3250 PRINT "MAXIMUM BRAKING IS ";B;"MPH/SEC"
3260 GOTO 3200
3300 LET T1=-S/A
3310 IF T1>D THEN 3500
3320 LET X1=X+S*T1+A/2*T1*T1
3330 IF X1>P(J+1) THEN 3400
3340 PRINT "YOU STOPPED";INT(P(J+1)-X1);"YARDS FROM POINT";J+1
3350 LET S=0
3360 LET X=X1
3370 LET T=T+T1
3380 GOTO 3100
3400 LET Y=P(J+1)-X
3402 IF A<>0 THEN 3410
3404 LMT T=T+Y/S
3406 GOTO 3440
3410 LET S1=SQR(S*S+2*A*Y)
3420 LET T=T-(S-S1)/A
3430 LET S=S1
3440 LET J=J+1
3450 GOTO 8000
3500 LET X1=X+S*D+A/2*D*D
3510 IF X1>P(J+1) THEN 3400
3520 LET T=T+D
3530 LET S=S+A*D
3540 LET X=X1
3550 GOTO 3100
3600 IF A1 <= M THEN 3700
3610 PRINT "MAXIMUM ACCELERATION IS";M;"MPH/SEC"
3620 GOTO 3200
3700 LET X1=X+S*D+A/2*D*D
3710 IF X1>P(J+1) THEN 3400
3720 GOTO 3500
8000 REM *** SUB CURVE ***
8010 REM
8020 LET I=INT(J/2)
8030 LET T1=(P(J+1)-P(J))/S
8040 LET S1=G(I)+(F(I)-G(I))*RND(1)
8050 IF S>S1 THEN 8100
8055 PRINT "CURVE";J;-J-1;",  SPEED";FN A(S);"MPH"
8060 LET J=J+1
8070 LET X=P(J)
8080 LET T=T+T1
8090 GOTO 3100
8100 IF S>S1+(F(I)-S1)/2 THEN 8200
8110 LET T2=T1*RND(1)*.4
8120 PRINT "SPEED IN CURVE";FN A(S);"MPH, TOOK CURVE WIDE, LOST";
8125 PRINT FN T(T2);"SEC."
8130 LET T1=T1+T2
8140 GOTO 8060
8200 IF S>F(I) THEN 8300
8210 LET S2=S-S*RND(1)*.9
8220 LET T1=T1*S/S2
8230 PRINT "SPUN OUT AT";FN A(S);"MPH, LOST SPEED AND TIME"
8240 LET S=S2
8250 GOTO 8060
8300 PRINT "LOST CONTROL AT";FN A(S);"MPH.  YOUR CAR CRASHED!!"
8305 PRINT "YOUR OPPONENT FINISHED IN";82/R;"SECONDS!"
8330 REM
8600 PRINT
8605 PRINT "DO YOU WISH TO TRY AGAIN";
8610 INPUT A$
8620 IF LEFT$(A$,1)="Y" THEN 1910
9000 END
9010 DATA 0,800,1000,1500,1600,1900,2400,2800,3200
9020 DATA 85,100
9030 DATA 20,35
9040 DATA 90,110
9050 DATA 50,70
9060 REM
9070 DATA 0,1,3,9,21,39,62,87,120,156,196,244,293,351,410
9080 DATA 479,550,625,700,750,800,847,894,942,990,1030,1080
9090 DATA 1135,1200,1260,1330,1382,1425,1470,1490,1505,1519
9100 DATA 1539,1548,1563,1578,1512,1610,1632,1658,1683,1710
9110 DATA 1758,1800,1850,1890,1943,1997,2050,2104,2057,2210
9120 DATA 2294,2317,2370,2420,2480,2535,2600,2670,2725,2768,2799,2830
9130 DATA 2861,2892,2920,2951,2982,3013,3044,3075,3106,3137,3168,3199
9140 DATA 10000
```

Guess It (추측 게임)

완벽한 규칙에 기초한 2인용 게임이다. 다시 말해, 우연적인 요소가 전혀 없는, 오직 실력만으로 승패를 가리는 게임으로, 냉정하고 합리적으로 전황을 움직이는 사람이 승리한다. 그러므로, 두 사람이 모두 규칙을 잘 알고 있는 경우, 선수를 잡은 쪽이 이기도록 되어 있다. 이 책의 전편인 「재미있는 BASIC 컴퓨터 게임 1」에 실린 Tic Tac Toe나 Even wins 게임이 그렇다.

게임으로서 가장 재미있는 것은, 우연적인 요소와 실력이 적당히 혼합된 것이리라. 잘 알려져 있는 트럼프 게임(Bridge poker 등)은 대개 이 종류이다.

그런데 둘이서 하는 mix type 게임의 대부분은, 너무 복잡해서 최고의 수를 몰라 재미가 없거나, 너무 단순해서 지루해져 버린다. 그러나, 이 게임은 그렇지 않다. 서로의 공격으로, 그 근방의 진퇴가 게임을 활발하게 만든다.

이 게임은, Guess It를 컴퓨터의 화면에 옮겨 놓은 것으로, 1740행부터 1930행까지가 게임 규칙이다. 각자 가지는 숫자의 수는 70행에서 할당된다.

80행부터 180행까지에서 승패의 확률(P(m, n))을 계산한다. 여기에서 m, n은 각자 가지는 숫자의 수이다.

플레이어에게 질문하는 숫자는 750행에서 구해지고, 속임수를 쓸 것인지의 여부는 940행으로 결정된다.

당신이 선수를 잡았을 경우, 이길 확률은 0.538로 조금 유리하다.

속임수를 쓰는 것은, 유리하게 시합을 진행하기 위해 중요한 요소이다. 정직한 질문은, 때로 down number(덮어 놓는 수)를 가르쳐 주는 결과가 될 수도 있다. 상대가 속임수에 넘어가면, 틀린 down number를 지정해서, 당신의 승리로 이끌 수도 있기 때문이다.

The program and description were written by Gerard Kiernan of Manhattanville College, Purchase, NY.

References

1. Mathematical Magic Show. Martin Gardner. Alfred A. Knopf, 1977.
2. "A Card Game With Bluffing." Rufus Isaacs, The American Mathematical Monthly, Vol. 62, February 1955 pages 99-108.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RUN
                    GUESS-IT
               CREATIVE COMPUTING
             MORRISTOWN, NEW JERSEY


DO YOU WANT INSTRUCTIONS-TYPE YES OR NO  설명이 필요합니까?
? YES

THE OBJECT OF THIS GAME IS TO GUESS AN UNKNOWN NUMBER
CALLED THE 'DOWN NUMBER'.  THE GAME IS PLAYED WITH THE  1~11의 넘버
NUMBERS 1 TO 11 .  YOU WILL BE GIVEN A HAND OF  5  중 5개를 다운 넘버로
RANDOMLY SELECTED NUMBERS BETWEEN 1 AND 11 . THE          하여, 그것을
COMPUTER WILL HAVE A SIMILAR HAND.  THE DOWN NUMBER WILL  알아맞히는
ALWAYS BE THE NUMBER NOT IN EITHER PLAYER HANDS.          게임입니다.

YOU ALTERNATE MOVES WITH THE COMPUTER.  ON ANY MOVE THERE
ARE TWO OPTIONS- GUESS THE DOWN NUMBER OR ASK ABOUT SOME
NUMBER.

WHEN A PLAYER GUESSES THE DOWN NUMBER THE GAME STOPS.
IF THE GUESS IS CORRECT THAT PLAYER WINS. 다운 넘버를 알아맞히면
IF THE GUESS IS NOT CORRECT THAT PLAYER LOSES.      이깁니다.

ALL QUESTIONS ABOUT NUMBERS IN THE OTHER PLAYERS HAND 질문에는
MUST BE ANSWERED TRUTHFULLY.  A PLAYER MAY'BLUFF' BY  정직하게
ASKING ABOUT A NUMBER IN HIS OWN HAND.  THE COMPUTER  답해야 합니다.
WILL SOMETIMES DO THIS.
컴퓨터는 가끔 당신을 속이는 수를 씁니다.
A NUMBER MAY BE ASKED ABOUT ONLY ONCE.
                         질문은 한 번에 하나씩입니다.
GOOD LUCK

YOUR HAND IS   당신의 수가 되는 번호

 11  2  6  1  4

DO YOU WANT TO GO FIRST? YES  먼저하겠읍니까?

DO YOU WANT TO GUESS THE DOWN NUMBER? NO  다운 넘버를 맞히겠읍니까?

WHAT NUMBER DO YOU WANT TO ASK ABOUT? 3

IS NOT IN MY HAND


DO YOU HAVE  4   4를 가지고 있읍니까?
? NO


DO YOU WANT TO GUESS THE DOWN NUMBER? YES

WHAT DO YOU THINK THE DOWN NUMBER IS
? 3

THE DOWN NUMBER IS 3
YOUR GUESS OF  3 IS CORRECT - YOU WIN    정답. 당신의 승리입니다.
DO YOU WANT TO PLAY AGAIN? YES

YOUR HAND IS

 7  9  5  6  10

DO YOU WANT TO GO FIRST? NO


DO YOU HAVE  6
? YES


DO YOU WANT TO GUESS THE DOWN NUMBER? NO

WHAT NUMBER DO YOU WANT TO ASK ABOUT? 11

 11 IS IN MY HAND


DO YOU HAVE  9
? YES
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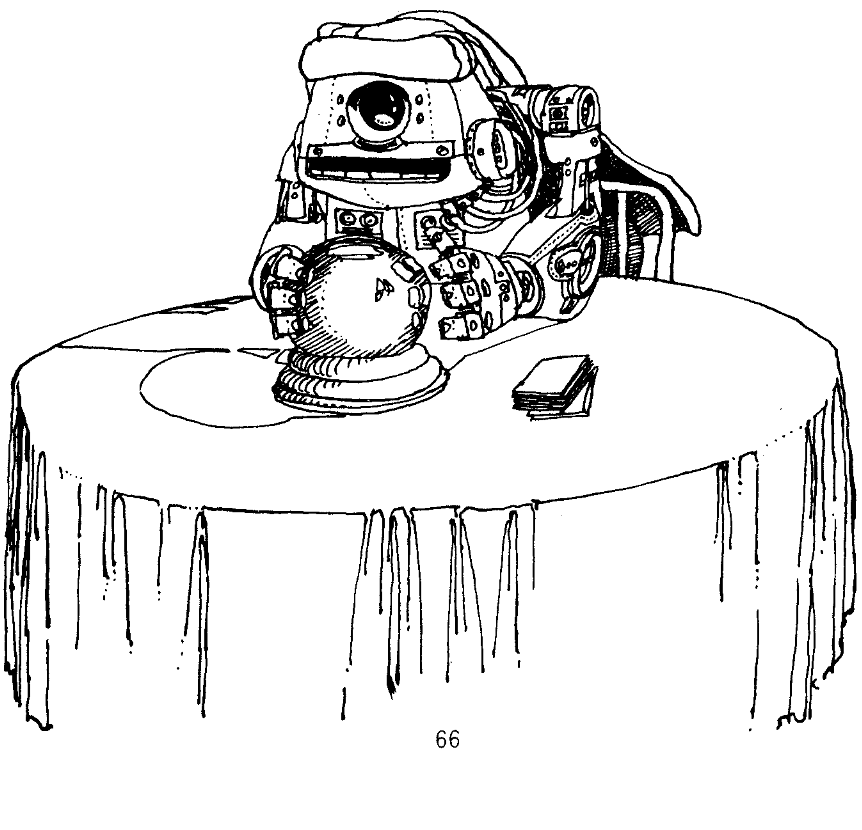
```
DO YOU WANT TO GUESS THE DOWN NUMBER? NO

WHAT NUMBER DO YOU WANT TO ASK ABOUT? 2

 2 IS IN MY HAND


DO YOU HAVE 4
? NO


DO YOU WANT TO GUESS THE DOWN NUMBER? YES

WHAT DO YOU THINK THE DOWN NUMBER IS   다운 넘버는 무엇이라 생각합니까?
? 4

THE DOWN NUMBER IS 1

YOUR  GUESS OF 4  IS NOT CORRECT-YOU LOSE   추측이 틀렸읍니다.
DO YOU WANT TO PLAY AGAIN? EYS
DO YOU WANT TO PLAY AGAIN? YES

YOUR HAND IS

 3  8  11  10  2

DO YOU WANT TO GO FIRST? YES


DO YOU WANT TO GUESS THE DOWN NUMBER? NO

WHAT NUMBER DO YOU WANT TO ASK ABOUT? 1

 1 IS IN MY HAND


DO YOU HAVE  3
? YES


DO YOU WANT TO GUESS THE DOWN NUMBER? NO

WHAT NUMBER DO YOU WANT TO ASK ABOUT? 9

 9 IS IN MY HAND


DO YOU HAVE 4
? NO


DO YOU WANT TO GUESS THE DOWN NUMBER? YES

WHAT DO YOU THINK THE DOWN NUMBER IS
? 4

THE DOWN NUMBER IS 5

YOUR  GUESS OF 4  IS NOT CORRECT-YOU LOSE
DO YOU WANT TO PLAY AGAIN? NO

YOU PLAYED 3 GAMES.  YOU LOST 2 YOU WON 1
 3게임 끝났읍니다. 당신은 2번 지고 1번 이겼읍니다.
BREAK IN 1580
OK
```

```
1 PRINT CHR$(26);TAB( 26)"GUESS-IT"
2 PRINT TAB( 20)"CREATIVE COMPUTING"
3 PRINT TAB( 18)"MORRISTOWN, NEW JERSEY"
4 PRINT
5 PRINT
10 PRINT
20 G1=0:C1=0
50 A1=RND(1)
70 H=5
80 DIM P(10,10)
90 FOR K=1 TO H
100 P(K,0)=1
110 P(0,K)=1/(K+1)
120 NEXT K
130 FOR I=1 TO H
140 FOR J=I TO H
150 P(I,J)=(1+J*P(J,I-1)*(1-P(J-1,I)))/(1+(J+2)*P(J,I-1))
160 P(J,I)=(1+I*P(I,J-1)*(1-P(I-1,J)))/(1+(I+1)*P(I,J-1))
170 NEXT J
180 NEXT I
190 Z=11
200 DIM U(Z),N(Z)
210 PRINT "DO YOU WANT INSTRUCTIONS";
220 INPUT A$
230 IF LEFT$(A$,1)="Y" THEN 1730
240 IF LEFT$(A$,1)<>"N" THEN 210
250 PRINT
260 G1=G1+1
270 FOR J=2 TO Z
280 U(J)=0
290 NEXT J
300 E=0:T=0:C=0:P=0:L=0
310 GOSUB 1630
320 REM N(1) TO N(H)= COMP HAND N(H+1)=TO N(Z)= OTHER HAND
330 D=N(Z)
340 PRINT"YOUR HAND IS"
350 PRINT
360 FOR I=H+1 TO Z-1
370 PRINT N(I);
380 NEXT I
390 PRINT
400 PRINT
410 PRINT"DO YOU WANT TO GO FIRST";
420 INPUT A$
430 IF LEFT$(A$,1)="Y" THEN 470
440 IF LEFT$(A$,1)<>"N" THEN 390
450 K=1
460 GOTO 480
470 K=0
480 K=K+1
490 M=H-C
500 N=H-P
510 PRINT
520 IF K=(INT(K/2))*2 THEN 860
530 PRINT
540 PRINT"DO YOU WANT TO GUESS THE DOWN NUMBER";
550 INPUT A$
560 IF LEFT$(A$,1)="Y" THEN 1250
570 IF LEFT$(A$,1)<>"N" THEN 530
580 PRINT
590 PRINT"WHAT NUMBER DO YOU WANT TO ASK ABOUT";
600 INPUT E
610 FOR I=1 TO Z
620 IF E=U(I) THEN 650
630 NEXT I
640 GOTO 670
650 PRINT E;"WAS ASKED BEFORE.  TRY AGAIN."
660 GOTO 580
670 FOR J=1 TO H
680 IF N(J)=E THEN 800
690 NEXT J
700 PRINT
710 PRINT E;"IS NOT IN MY HAND."
720 IF M=0 THEN 1460
730 IF N=0 THEN 1440
740 Y=((M+1)*P(M,N-1)-M*P(M-1,N))/(1+(M+1)*P(M,N-1))
750 IF RND(1)<Y THEN 1380
760 GOSUB 1220
770 IF (H-P)=1 THEN 1460
780 P=P+1
790 GOTO 480
800 PRINT
810 PRINT E;"IS IN MY HAND."
820 C=C+1
830 GOSUB 1220
840 GOTO 480
850 REM COMP SEQ STARTS
860 IF T<>0 THEN 1410
870 IF H-C<>0 THEN 890
```

```
880 GOTO 1460
890 IF H-P<>0 THEN 910
900 GOTO 1460
910 IF (2*H-2)-(P+C)<>0 THEN 930
920 GOTO 1460
930 REM RND DECISION TO BLUFF OR NOT ON ASKING FOR CARD
940 IF RND(1)>1/(1+(N+1)*P(N,M-1)) THEN 1060
950 PRINT
960 A=INT(H*RND(1))+1
970 FOR J=1 TO Z
980 IF N(A)=U(J) THEN 960
990 NEXT J
1000 PRINT"DO YOU HAVE";N(A);
1010 C=C+1
1020 INPUT A$
1030 E=N(A)
1040 GOSUB 1220
1050 GOTO 480
1060 GOSUB 1170
1070 PRINT
1080 PRINT"DO YOU HAVE";N(A);
1090 INPUT A$
1100 IF LEFT$(A$,1)="Y" THEN 1130
1110 T=1
1120 GOTO 480
1130 E=N(A)
1140 P=P+1
1150 GOSUB 1220
1160 GOTO 480
1170 A=INT((H+1)*RND(1))+(H+1)
1180 FOR J=1 TO Z
1190 IF N(A)=U(J) THEN GOTO 1170
1200 NEXT J
1210 RETURN
1220 L=L+1
1230 U(L)=E
1240 RETURN
1250 PRINT
1260 PRINT"WHAT DO YOU THINK THE DOWN NUMBER IS";
1270 INPUT B
1280 PRINT
1290 PRINT"THE DOWN NUMBER IS";N(Z);CHR$(8);" "
1300 IF D=N(Z) THEN GOTO 1360
1310 PRINT
1320 PRINT"YOUR GUESS OF";B;"IS CORRECT.  YOU WIN!"
1330 C1=C1+1
1340 GOTO 1520
1350 PRINT
1360 PRINT"YOUR GUESS OF";B;"IS CORRECT.  YOU WIN!"
1370 GOTO 1520
1380 PRINT"I THINK YOU WERE NOT BLUFFING WHEN YOU ASKED ABOUT";E;CHR$(8);"."
1390 G=E
1400 GOTO 1480
1410 PRINT N(A);"WAS NOT A BLUFF."
1420 G=N(A)
1430 GOTO 1480
1440 G=N(Z)
1450 GOTO 1480
1460 GOSUB 1170
1470 G=N(A)
1480 PRINT"I GUESS THE DOWN NUMBER IS";G;CHR$(8);" "
1490 IF G=N(Z) THEN 1590
1500 PRINT
1510 PRINT"THE DOWN NUMBER IS";N(Z);CHR$(8);".  I WAS WRONG...  YOU WIN."
1520 PRINT:PRINT "DO YOU WANT TO PLAY AGAIN";
1530 INPUT A$
1540 IF LEFT$(A$,1)="Y" THEN 250
1550 IF LEFT$(A$,1)<>"N" THEN 1520
1560 PRINT
1570 PRINT"YOU PLAYED";G1;"GAMES.   YOU LOST";C1;CHR$(8);", YOU WON";
    G1-C1;CHR$(8);"."
1580 STOP
1590 PRINT
1600 PRINT"THE DOWN NUMBER IS";N(Z);CHR$(8);".  I WAS CORRECT...YOU LOSE."
1610 C1=C1+1
1620 GOTO 1520
1630 FOR I=1 TO Z
1640 N(I)=I
1650 NEXT I
1660 FOR I=1 TO Z
1670 R=INT(RND(1)*((Z+1)-I))+I
1680 W=N(R)
1690 N(R)=N(I)
1700 N(I)=W
1710 NEXT I
1720 RETURN
1730 PRINT CHR$(26)
1740 PRINT"THE OBJECT OF THIS GAME IS TO GUESS AN UNKNOWN NUMBER"
1750 PRINT"CALLED THE 'DOWN NUMBER'.   THE GAME IS PLAYED WITH THE"
1760 PRINT"NUMBERS 1 TO";Z;CHR$(8);".   YOU WILL BE GIVEN A HAND OF";H
1770 PRINT"RANDOMLY SELECTED NUMBERS BETWEEN 1 AND";Z;CHR$(8);".  THE "
1780 PRINT"COMPUTER WILL HAVE A SIMILAR HAND."
1790 PRINT
1800 PRINT"YOU ALTERNATE MOVES WITH THE COMPUTER.  ON ANY MOVE THERE"
1810 PRINT"ARE TWO OPTIONS - GUESS THE DOWN NUMBER OR ASK ABOUT SOME "
1820 PRINT"NUMBER."
1830 PRINT
1840 PRINT"WHEN A PLAYER GUESSES THE DOWN NUMBER THE GAME STOPS."
1850 PRINT"IF THE GUESS IS CORRECT THAT PLAYER WINS."
1860 PRINT"IF THE GUESS IS NOT CORRECT THAT PLAYER LOSES."
1870 PRINT
1880 PRINT"ALL QUESTIONS ABOUT NUMBERS IN THE OTHER PLAYERS HAND"
1890 PRINT"MUST BE ANSWERED TRUTHFULLY.   A PLAYER MAY 'BLUFF' BY"
1900 PRINT"ASKING ABOUT A NUMBER IN HIS OWN HAND (THE COMPUTER"
1910 PRINT"WILL SOMETIMES DO THIS)."
1920 PRINT
1930 PRINT"A NUMBER MAY BE ASKED ABOUT ONLY ONCE."
1940 PRINT
1950 LINE INPUT "ENTER 'RETURN' TO START THE GAME.  ";XX$
1960 GOTO 250
1970 END
```



ICBM (대륙간 탄도탄)

레이다 기지에서 ICBM의 침입을 포착했다. 당신은 즉시, 요격용 미사일(SAM)로 그것을 저지하지 않으면 안 된다.

북—동의 좌표로 표시되는 ICBM에, 레이다 요격 미사일 발사! 이 미사일은 공중에서도 유도할 수 있다.

최신 정보가 1분마다, 레이다 기지로부터 전해져 온다. 스크린에는 ICBM의 좌표, 요격 미사일의 좌표, 양자의 거리가 표시된다. 그것에 의해 요격 미사일의 코스를 컨트롤한다.

양자의 코스가 교차했을 때, 요격이 성공하는 것이다. 그런데, 속도나 고도는 표시되지 않으므로, 직감에 의지할 수밖에 없다. ICBM은 프로그램에 의해서 회피 작전 비행을 하도록 되어 있으므로, 쉽지는 않을 것이다.

요격 미사일에는 적외선 센서(sensor)가 붙어 있으므로, ICBM과의 거리가 5마일로 가까와지면 자동으로 조종된다. 또, 목표로부터 떨어져도 회전(U-turn)해서 추적할 수 있다. 그러나, 부디 ICBM과 함께 자기 기지를 파괴하지 않도록…….

여러분 스스로가 이 프로그램을 개량해 보는 것도 좋으리라 생각되어, 개량안 몇 가지를 소개한다.

(1) 요격 미사일의 속도를 제어(control)할 수 있도록 한다.

처음 속도를 난수를 사용하여 결정한다. 이것만으로는 빗나가기 쉬우니 새로운 코스와 속도를 입력할 수 있도록 한다.

(2) 3차원으로 확장한다.

좌표와 함께 ICBM의 고도를 표시할 수 있도록 한다. 요격 미사일의 앙각(仰角)을 입력할 수 있도록 한다.

(3) 모든 방위로부터 ICBM이 진입해 오도록 한다.

이 프로그램에서는, ICBM이 북동쪽에서만 오지만, 이것을 모든 방향에서 진입해 오도록 한다.

This game is derived from a program submitted by Chris Falco. The writeup is by Paul Calter and originally appeared in *Creative Computing*, May/Jun 1975.

```
                    ICBM
             CREATIVE COMPUTING
           MORRISTOWN, NEW JERSEY


-------MISSLE------          --------SAM--------     -----
MILES          MILES          MILES          MILES          HEADING 진로
NORTH          EAST           NORTH          EAST           ?
---------------------------------------------------------------
 201            975             0             0             ? 15
ICBM & SAM NOW 920 MILES APART  ICBM과 SAM의 거리는 920 마일.
 198            920            48            12             ? 85
ICBM & SAM NOW 822 MILES APART
 200            870            52            61             ? 75
ICBM & SAM NOW 715 MILES APART
 196            812            64            109            ? 80
ICBM & SAM NOW 613 MILES APART
 180            762            72            158            ? 85
ICBM & SAM NOW 511 MILES APART
 169            710            76            207            ? 80
ICBM & SAM NOW 395 MILES APART
 157            645            84            256            ? 70
ICBM & SAM NOW 298 MILES APART
 157            595            101           302            ? 75
ICBM & SAM NOW 186 MILES APART
 140            535            113           350            ? 80
ICBM & SAM NOW 84 MILES APART
 126            483            121           399            ? 90
ICBM & SAM NOW 27 MILES APART
 113            423            121           449            ? 95
ICBM & SAM NOW 137 MILES APART
 113            361            116           498            ? -90
ICBM & SAM NOW 153 MILES APART
 110            295            116           448            ? -95
TOO BAD.  YOUR SAM FELL TO THE GROUND!  실패.  SAM이 추락!
DO YOU WANT TO PLAY MORE? (Y OR N)? N  다시 한 번 하겠읍니까?
```

```
10 PRINT CHR$(26);TAB( 26);"ICBM"
20 PRINT TAB( 20);"CREATIVE COMPUTING"
30 PRINT TAB( 18);"MORRISTOWN, NEW JERSEY"
40 PRINT:PRINT:PRINT
110 X1=0 Y1=0
120 X=INT(RND(1)*800)+200:Y=INT(RND(1)*800)+200
130 S=INT(RND(1)*20+50):S1=INT(RND(1)*20+50)
170 PRINT "-------MISSLE------          ";
175 PRINT "--------SAM--------          -----"
180 PRINT "MILES","MILES","MILES","MILES","HEADING"
190 PRINT "NORTH","EAST","NORTH","EAST","?"
200 PRINT "----------------------------------";
205 PRINT "---------------------------"
210 FOR N=1 TO 50
220 PRINT USING "####          ";Y,X,Y1,X1,
230 IF X=0 THEN 550
240 INPUT T1
250 T1=T1/57.296
260 H=INT(RND(1)*200+1)
270 IF H>4 THEN 290
280 ON H GOTO 470,490,510,530
290 X1=INT(X1+S1*SIN(T1)):Y1=INT(Y1+S1*COS(T1))
310 IF SQR(X^2+Y^2)>S THEN 350
320 X=0:Y=0
340 GOTO 430
350 B=SQR(X^2+Y^2)/1000
360 T=ATN(Y/X)
370 X=INT(X-S*COS(T)+RND(1)*20+R)
380 Y=INT(Y-S*SIN(T)+RND(1)*20+R)
390 D=SQR((X-X1)^2+(Y-Y1)^2)
400 IF D=<5 THEN 440
410 D=INT(D)
420 PRINT "ICBM & SAM NOW"; D; "MILES APART"
430 NEXT N
440 PRINT "CONGRADULATIONS!  YOUR SAM CAME WITHIN";D;"MILES OF"
450 PRINT "THE ICBM AND DESTROYED IT!"
460 GOTO 560
470 PRINT "TOO BAD.  YOUR SAM FELL TO THE GROUND!"
480 GOTO 560
490 PRINT "YOUR SAM EXPLODED IN MIDAIR!"
500 GOTO 560
510 PRINT "GOOD LUCK - THE ICBM EXPLODED HARMLESSLY IN MIDAIR!"
520 GOTO 560
530 PRINT "GOOD LUCK - THE ICBM TURNED OUT TO BE A FRIENDLY AIRCRAFT!"
540 GOTO 560
550 PRINT "TOO BAD!"
555 PRINT "THE ICBM JUST HIT YOUR LOCATION!!"
560 PRINT:PRINT "DO YOU WANT TO PLAY MORE? (Y OR N)";
570 INPUT A$
580 IF LEFT$(A$,1)="Y" THEN PRINT CHR$(26):GOTO 120
590 END
```

Inkblot (잉크 얼룩)

심리 테스트에서 사용하는, 잉크 얼룩같은 모양을 만드는 프로그램이다. 무한히 많은 종류의 모양을 만들 수 있으며, 차례차례로 나타나는 모양은, 화제(話題)를 제공해 줄 뿐만 아니라, 보기만 해도 즐거운 컴퓨터 예술의 좋은 예이다.

Inkblot은 수학적으로 재미있는 점이 있다. 처음에 왼쪽 반이 점점 타원으로 얼룩지고, 대칭이 되게 오른쪽으로도 이동된다. 타원의 성질을 결정하는 변수 a, b, j, k는 난수에 의해 구해진다.

여기서는,

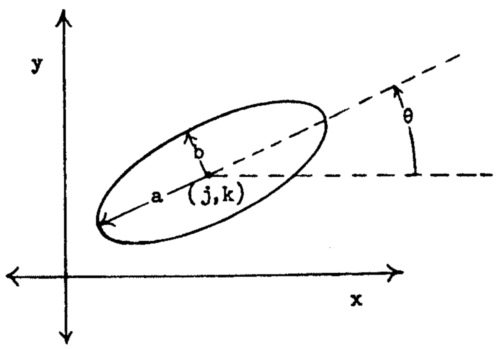
a=타원의 긴 반지름
b=타원의 짧은 반지름
j=타원 중심의 x좌표
k=타원 중심의 y좌표
θ=타원의 긴 축이 x축과 만드는 각이다.

어떤 순서로 타원이 그려지는가는 설명이 상당히 복잡하므로 생략한다.

그런데, Inkblot을 더욱 재미있게 하기 위한 방법이 몇 가지 있다. 얼룩을 만들 때 사용하는 문자를 바꾸어 보거나, 백과 흑을 반전시켜 보는 것도 그 한 방법이다. 그리고, 모양의 변화를 연결하면 더 재미있지 않을까?

Program and description are by Scott Costello.

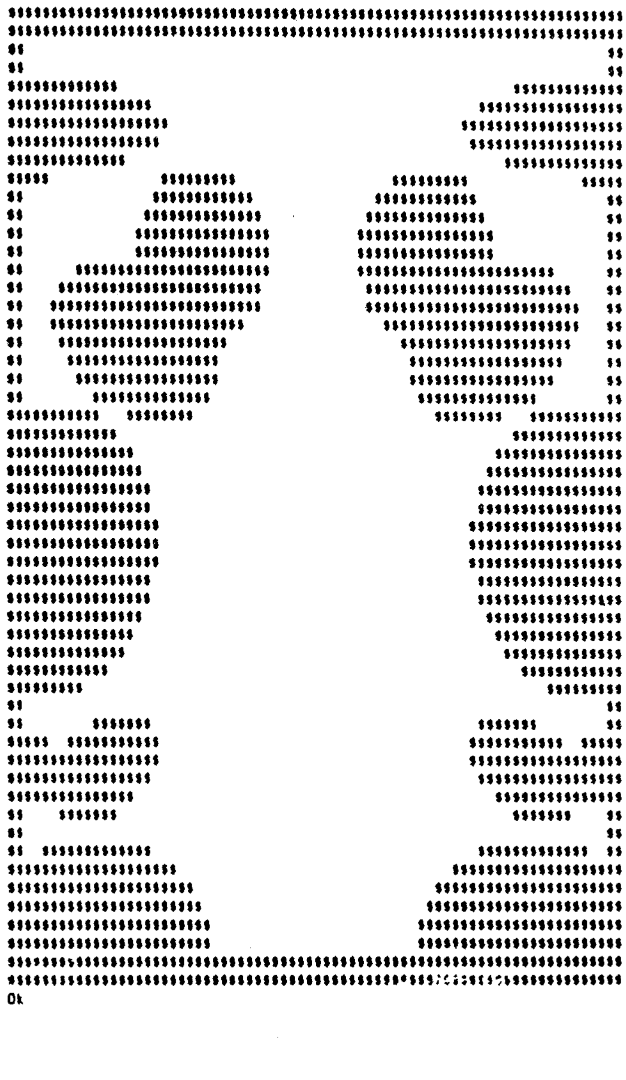
$$\frac{[(x-j)\cos\theta + (y-k)\sin\theta]^2}{a^2} + \frac{[(y-k)\cos\theta - (x-j)\sin\theta]^2}{b^2} = 1$$



where a = the horizontal radius of the ellipse
b = the vertical radius of the ellipse
j = the distance from the ellipse center to the y-axis
k = the distance from the ellipse center to the x-axis
θ = the angle of rotation in radians

Since the actual method by which the program plots the ellipses is quite complicated, it won't be discussed here.

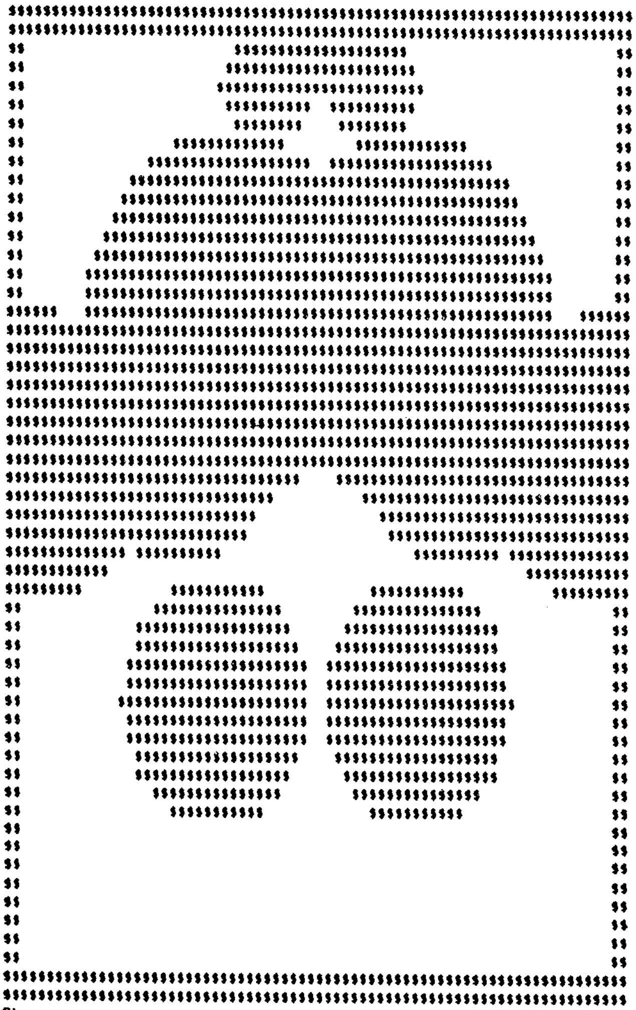
```
RUN
                              INKBLOT
                         CREATIVE COMPUTING
                       MORRISTOWN, NEW JERSEY
```



```
Ok
```

RUN

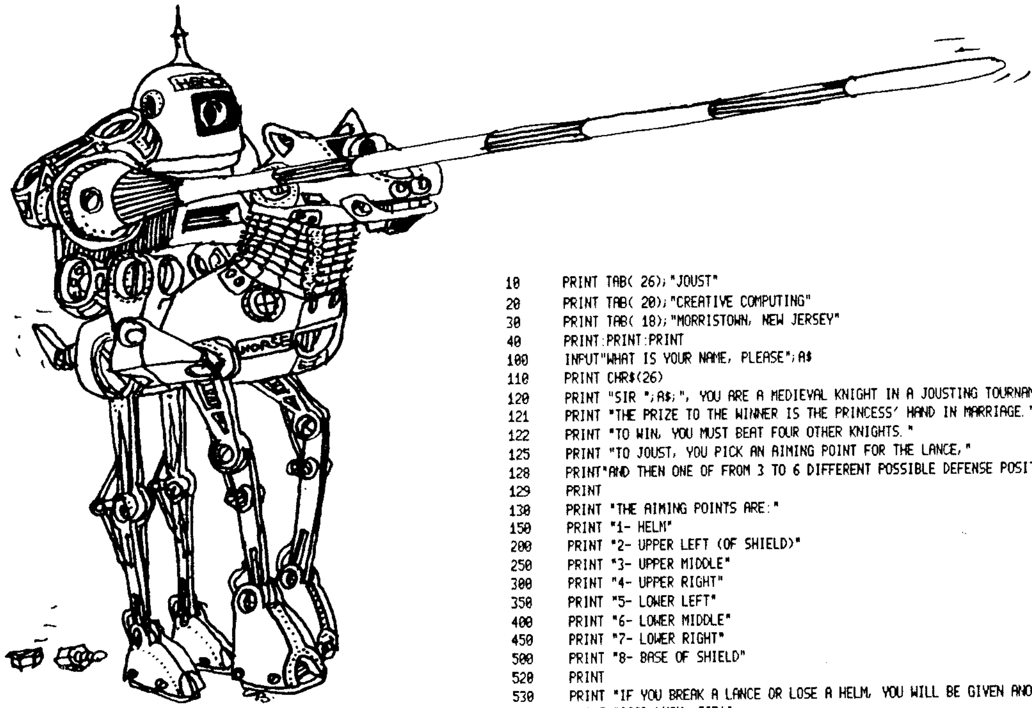
INKBLOT
CREATIVE COMPUTING
MORRISTOWN, NEW JERSEY



Ok

```
100 PRINT TAB( 26);"INKBLOT"
105 PRINT TAB( 20);"CREATIVE COMPUTING"
110 PRINT TAB( 18);"MORRISTOWN, NEW JERSEY"
115 PRINT:PRINT:PRINT
120  REM *** WORKS BY PLOTTING ELLIPSES AND THEIR MIRROR IMAGES
130 DIM A (12,13),B$(36),A$(36)
140  REM *** CHOOSE FROM 5 TO 12 ELLIPSES
150  M=INT(8*RND(1))+5
160  REM *** CREATE SIZE, LOCATION AND ANGLE OF M ELLIPSES
170  FOR L=1 TO M
180  A(L,1)=34*RND(1)
190  A(L,2)=80*RND(1)
200  A(L,3)=(15*RND(1)+2)^2
210  A(L,4)=(15*RND(1)+2)^2
220  T=3.14159*RND(1)
230  A(L,5)=COS(T)
240  A(L,6)=SIN(T)
250  A(L,7)=A(L,5)*A(L,6)
260  A(L,5)=A(L,5)*A(L,5)
270  A(L,6)=A(L,6)*A(L,6)
280  A(L,8)=A(L,1)*A(L,1)*A(L,6)
290  A(L,9)=A(L,1)*A(L,1)*A(L,5)
300  A(L,10)=A(L,1)*A(L,7)
310  A(L,11)=-2*A(L,1)*A(L,6)
320  A(L,12)=-2*A(L,1)*A(L,5)
330  A(L,13)=A(L,6)/A(L,4)+A(L,5)/A(L,3)
340  NEXT L
350  REM *** PRINT TOP BORDER;  B$ CONTAINS 36 DOLLAR SIGNS
360  B$="$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$"
370 PRINT B$;B$
380 PRINT B$;B$
390  REM *** LOOP Y IS Y-COORDINATE OF PLOT; EACH TIME Y LOOP
400  REM *** IS EXECUTED, A LINE IS PRINTED
410  FOR Y=79.9 TO 0 STEP -1.6
420  A$="$$                                  "
430  REM *** LOOP E CHECKS THE EQUATION OF EACH ELLIPSE TO SEE
440  REM *** IF IT INTERSECTS THE LINE TO BE PRINTED
450  FOR E=1 TO M
460  Y1=Y-A(E,2)
470  Y2=Y1*Y1
480  Y3=Y1*A(E,10)
490  Y4=Y1*A(E,7)
500  B=(A(E,12)+Y4)/A(E,3)+(-Y4+A(E,11))/A(E,4)
510  C=(Y2*A(E,6)+A(E,9)-Y3)/A(E,3)+(Y2*A(E,5)+A(E,8)+Y3)/A(E,4)-1
520  REM *** R IS THE RADICAL IN THE STANDARD QUADRATIC FORMULA
530  R=B*B-4*A(E,13)*C
540  IF R<0 THEN 690
550  R=SQR(R)
560  REM *** FIND WHERE THE LINE INTERSECTS THE ELLIPSE
570  R1=INT(-(B+R)/2/A(E,13)+1)
580  IF R1>34 THEN 690
590  R2=INT((R-B)/2/A(E,13))
600  IF R2<1 THEN 690
610  IF R2<35 THEN 630
620  R2=34
630  IF R1>0 THEN 660
640  R1=1
650  REM *** FILL IN THE LINE WHERE IT CROSSES THE ELLIPSE
660  FOR J=R1+2 TO R2+2
670 A$=LEFT$(A$,J-1)+"$"+RIGHT$(A$,LEN(A$)-J)
680  NEXT J
690  NEXT E
700  REM *** PRINT LINE
710 PRINT A$;
720 FOR K=36 TO 1 STEP -1
730 PRINT MID$(A$,K,1);
740  NEXT K
750  NEXT Y
760  REM *** PRINT BOTTOM BORDER
770 PRINT B$;B$
780 PRINT B$;B$
790 END
```

Joust (마상 창 시합)



Joust는, 말을 타고 창 시합을 하는 중세 기사의 시합이다.

당신이 이 시합에서 승리하면 공주와 결혼할 수 있다. 그러나, 그러기 위해서는 4명의 기사를 쓰러뜨려야만 한다. 4명의 기사란 금(金)의 기사, 은(銀)의 기사, 적(赤)의 기사, 흑(黑)의 기사를 말하는데, 모두가 날쌔고 사나운 기사들이다.

창으로 겨누는 곳은 투구와 동체에 8군데이며, 그 중 3~6군데에는 프러텍터(protector)를 붙일 수 있다.

시합은, 상대를 찌르거나 프러텍터를 뚫거나 하여, 당신이 이기든지, 죽든지 말에서 떨어질 때까지 계속된다.

This program was conceived and written by Alan Yarbrough.

```
10    PRINT TAB( 26);"JOUST"
20    PRINT TAB( 20);"CREATIVE COMPUTING"
30    PRINT TAB( 18);"MORRISTOWN, NEW JERSEY"
40    PRINT:PRINT:PRINT
100   INPUT"WHAT IS YOUR NAME, PLEASE";A$
110   PRINT CHR$(26)
120   PRINT "SIR ";A$;", YOU ARE A MEDIEVAL KNIGHT IN A JOUSTING TOURNAMENT."
121   PRINT "THE PRIZE TO THE WINNER IS THE PRINCESS' HAND IN MARRIAGE."
122   PRINT "TO WIN, YOU MUST BEAT FOUR OTHER KNIGHTS."
125   PRINT "TO JOUST, YOU PICK AN AIMING POINT FOR THE LANCE,"
128   PRINT"AND THEN ONE OF FROM 3 TO 6 DIFFERENT POSSIBLE DEFENSE POSITIONS."
129   PRINT
130   PRINT "THE AIMING POINTS ARE:"
150   PRINT "1- HELM"
200   PRINT "2- UPPER LEFT (OF SHIELD)"
250   PRINT "3- UPPER MIDDLE"
300   PRINT "4- UPPER RIGHT"
350   PRINT "5- LOWER LEFT"
400   PRINT "6- LOWER MIDDLE"
450   PRINT "7- LOWER RIGHT"
500   PRINT "8- BASE OF SHIELD"
520   PRINT
530   PRINT "IF YOU BREAK A LANCE OR LOSE A HELM, YOU WILL BE GIVEN ANOTHER."
550   PRINT "GOOD LUCK, SIR!"
555   PRINT
600   FOR A = 1 TO 4
650   ON A GOTO 800, 950, 1100, 1250
700   REM OFF YOU GO TO THE FOUR JOUSTS.
750   REM ------------------------------
800   PRINT "THIS IS YOUR FIRST JOUST. YOU ARE UP AGINST THE GOLD KNIGHT."
850   GOTO 1400
950   PRINT "THIS IS YOUR SECOND JOUST. YOUR OPPONENT IS THE SILVER KNIGHT."
1000  GOTO 1400
1100  PRINT "YOU ARE DOING WELL! YOUR THIRD JOUST IS AGAINST THE RED KNIGHT."
1150  GOTO 1400
1250  PRINT "THIS IS YOUR FINAL TEST!! IF YOU WIN THIS ONE THE PRINCESS"
1270  PRINT "IS YOURS!!! THIS FIGHT IS AGAINST THE FIERCE BLACK KNIGHT!!!!"
1400  PRINT:INPUT "YOUR AIMING POINT(1-8)";B:PRINT
1450  IF B <1 OR B>8 THEN 1400
1470  PRINT "YOU MAY USE ONE OF THESE DEFENSES:"
1500  ON B GOTO 1550, 1650, 1750, 1850, 1550, 1750, 1550, 1950
1550  PRINT " 4-STEADY SEAT, 5-SHIELD HIGH, 6-SHIELD LOW."
1600  GOTO 2000
1650  PRINT " 3-LEFT LEAN, 4-STEADY SEAT, 5-SHIELD HIGH, 6-SHIELD LOW."
1700  GOTO 2000
1750  PRINT " 1-LOWER HELM, 2-RIGHT LEAN, 3-LEFT LEAN, 4-STEADY SEAT, "
1755  PRINT " 5-SHIELD HIGH, 6-SHIELD LOW."
1800  GOTO 2000
1850  PRINT " 2-RIGHT LEAN, 4-STEADY SEAT, 5-SHIELD HIGH, 6-SHIELD LOW."
1900  GOTO 2000
1950  PRINT " 1-LOWER HELM, 4-STEADY SEAT, 5-SHIELD HIGH, 6-SHIELD LOW."
2000  PRINT:INPUT "WHAT IS YOUR CHOICE"; C:PRINT
2050  D = INT(RND(1)*8) + 1
2100  ON D GOTO 2150, 2200, 2250, 2300, 2350, 2400, 2450, 2500
2150  ON C GOTO 2600, 2600, 2600, 2700, 2800, 2600
2200  ON C GOTO 2800, 2750, 2600, 2750, 2750, 2600
2250  ON C GOTO 2850, 2800, 2650, 2750, 2950, 2900
2300  ON C GOTO 2650, 2600, 2750, 2650, 2650, 2800
2350  ON C GOTO 2750, 2950, 2600, 2750, 2600, 2750
2400  ON C GOTO 2950, 2650, 2750, 2950, 2850, 2750
2450  ON C GOTO 2650, 2600, 2950, 2650, 2650, 2650
2500  ON C GOTO 2750, 2650, 2850, 2750, 2850, 2750
```

```
2600 PRINT "HE MISSED YOU!":S=0:GOTO 3000
2650 PRINT "HE HIT YOUR SHIELD BUT IT GLANCED OFF.":S=0:GOTO 3000
2700 PRINT "HE KNOCKED OFF YOUR HELM!":S=0:GOTO 3000
2750 PRINT "HE BROKE HIS LANCE.":S=0:GOTO 3000
2800 PRINT "HE HAS UNSEATED YOU (THUD)!":S=5:GOTO 3000
2850 PRINT "HE HAS BROKEN HIS LANCE, INJURED AND UNSEATED YOU (OUCH)!"
2855 S=5:GOTO 3000
2900 PRINT "HE HAS INJURED AND UNSEATED YOU (CRASH)!":S=5:GOTO 3000
2950 PRINT "HE HAS BROKEN HIS LANCE AND UNSEATED YOU (CLANG)!":S=5
3000 PRINT:E = INT(RND(1)*6) + 1
3050 ON D GOTO 3100,3150,3200,3250,3100,3200,3100,3300
3100 IF E<4 THEN 3000
3110 GOTO 3350
3150 IF E<3 THEN 3000
3200 GOTO 3350
3250 IF E=1 OR E=3 THEN 3000
3260 GOTO 3350
3300 IF E = 2 OR E = 3 THEN 3000
3350 ON E GOTO 3400, 3450, 3500, 3550, 3600, 3650
3400 ON B GOTO 3700, 3900, 3950, 3750, 3850, 4050, 3750, 3850
3450 ON B GOTO 3700, 3850, 3900, 3700, 4050, 3750, 3700, 3750
3500 ON B GOTO 3700, 3700, 3750, 3850, 3700, 3850, 4050, 3900
3550 ON B GOTO 3800, 3850, 3850, 3750, 3850, 4050, 3750, 3850
3600 ON B GOTO 3900, 3850, 4050, 3750, 3700, 3950, 3750, 3950
3650 ON B GOTO 3700, 3700, 4000, 3900, 3850, 3850, 3750, 3850
3700 PRINT "YOU MISSED HIM (HISS)!":T=0:GOTO 4100
3750 PRINT "YOU HIT HIS SHIELD BUT GLANCED OFF.":T=0:GOTO 4100
3800 PRINT "YOU KNOCKED OFF HIS HELM (CHEERS)!":T=0:GOTO 4100
3850 PRINT "YOU BROKE YOUR LANCE (CRACK...)":T=0:GOTO 4100
3900 PRINT "YOU UNSEATED HIM (LOUD CHEERS AND HUZZAHS)!!":T=5:GOTO 4100
3950 PRINT "YOU BROKE YOUR LANCE, BUT UNSEATED AND INJURED YOUR FOE."
3955 T=5:GOTO 4100
4000 PRINT "YOU INJURED AND UNSEATED YOUR OPPONENT.":T=5:GOTO 4100
4050 PRINT "YOU BROKE YOUR LANCE BUT UNSEATED YOUR OPPONENT.":T=5:GOTO 4100
4100 IF S = T AND S = 0 THEN 4450
4150 IF S = T THEN 4400
4200 IF S<T THEN 4300
4250 IF S>T THEN 4350
4300 PRINT:PRINT "YOU HAVE WON THIS JOUST.":PRINT:GOTO 4320
4320 NEXT A
4330 GOTO 4550
4350 PRINT:PRINT "TOO BAD, YOU LOST. HOPE YOUR INSURANCE WAS PAID UP.":
     GOTO 4500
4400 PRINT:PRINT "TOO BAD, YOU BOTH LOST. AT LEAST YOUR HONOR IS INTACT.":
     GOTO 4500
4450 PRINT:PRINT "YOU ARE NOW READY TO TRY AGAIN.":GOTO 1400
4500 PRINT:PRINT "SORRY, BETTER LUCK NEXT JOUST.":GOTO 9999
4550 PRINT:PRINT "HOORAY! YOU ARE THE WINNER. HERE COMES THE BRIDE!"
9999 END
```

```
RUN
                         JOUST
                   CREATIVE COMPUTING
                 MORRISTOWN, NEW JERSEY

                                    중세 기사의 창 시합을 하는 것입니다.
WHAT IS YOUR NAME, PLEASE? STEVE
SIR STEVE, YOU ARE A MEDIEVAL KNIGHT IN A JOUSTING TOURNAMENT.
THE PRIZE TO THE WINNER IS THE PRINCESS' HAND IN MARRIAGE.
TO WIN, YOU MUST BEAT FOUR OTHER KNIGHTS.        시합에서 승리하면 공주와
TO JOUST, YOU PICK AN AIMING POINT FOR THE LANCE,  결혼할 수 있읍니다.
AND THEN ONE OF FROM 3 TO 6 DIFFERENT POSSIBLE DEFENSE POSITIONS.
THE AIMING POINTS ARE: 창으로 겨냥할 곳은 :
1- HELM   투구
2- UPPER LEFT (OF SHIELD) (갑옷의) 左上
3- UPPER MIDDLE                  中上
4- UPPER RIGHT                   右上
5- LOWER LEFT                    左下
6- LOWER MIDDLE                  中下
7- LOWER RIGHT                   右下
8- BASE OF SHIELD                방패
만약, 당신의 창이 부러지면 새것을 줍니다.
IF YOU BREAK A LANCE OR LOSE A HELM, YOU WILL BE GIVEN ANOTHER.
GOOD LUCK, SIR!  행운을 빕니다.

THIS IS YOUR FIRST JOUST. YOU ARE UP AGINST THE GOLD KNIGHT.
YOUR AIMING POINT(1-8)? 4  어디를 겨냥하겠읍니까?
YOU MAY USE ONE OF THESE DEFENSES: 한군데에 프러텍터를 붙일 수 있읍니다.
        2-RIGHT LEAN, 4-STEADY SEAT, 5-SHIELD HIGH, 6-SHIELD LOW.
WHAT IS YOUR CHOICE? 2
HE MISSED YOU!
YOU UNSEATED HIM (LOUD CHEERS AND HUZZAHS!!)  살았읍니다.
YOU HAVE WON THIS JOUST.                      당신의 승리입니다.

THIS IS YOUR SECOND JOUST. YOUR OPPONENT IS THE SILVER KNIGHT.
YOUR AIMING POINT(1-8)? 5
YOU MAY USE ONE OF THESE DEFENSES:
        4-STEADY SEAT, 5-SHIELD HIGH, 6-SHIELD LOW.
WHAT IS YOUR CHOICE? 4
HE BROKE HIS LANCE.              그의 창이 부러졌읍니다.
YOU BROKE YOUR LANCE(CRACK...)   당신의 창도 (딱…)
YOU ARE NOW READY TO TRY AGAIN. 재시합입니다.
YOUR AIMING POINT(1-8)? 2
YOU MAY USE ONE OF THESE DEFENSES:
        3-LEFT LEAN, 4-STEADY SEAT, 5-SHIELD HIGH, 6-SHIELD LOW.
WHAT IS YOUR CHOICE? 3
HE BROKE HIS LANCE.
YOU MISSED HIM (HISS!)  잘못 찔렀읍니다.
YOU ARE NOW READY TO TRY AGAIN.
YOUR AIMING POINT(1-8)? 3
YOU MAY USE ONE OF THESE DEFENSES:
        1-LOWER HELM, 2-RIGHT LEAN, 3-LEFT LEAN, 4-STEADY SEAT,
        5-SHIELD HIGH, 6-SHIELD LOW.
WHAT IS YOUR CHOICE? 4
HE KNOCKED OFF YOUR HELM!   당신은 투구를 떨어뜨렸읍니다.
YOU BROKE YOUR LANCE(CRACK...)
YOU ARE NOW READY TO TRY AGAIN.
YOUR AIMING POINT(1-8)? 3
YOU MAY USE ONE OF THESE DEFENSES:
        1-LOWER HELM, 2-RIGHT LEAN, 3-LEFT LEAN, 4-STEADY SEAT,
        5-SHIELD HIGH, 6-SHIELD LOW.
WHAT IS YOUR CHOICE? 4
HE HIT YOUR SHIELD BUT IT GLANCED OFF.  다행히 스치기만 했읍니다.
YOU BROKE YOUR LANCE BUT UNSEATED YOUR OPPONENT.
YOU HAVE WON THIS JOUST.

YOU ARE DOING WELL! YOUR THIRD JOUST IS AGAINST THE RED KNIGHT.
YOUR AIMING POINT(1-8)? 8
YOU MAY USE ONE OF THESE DEFENSES:
        1-LOWER HELM, 4-STEADY SEAT, 5-SHIELD HIGH, 6-SHIELD LOW.
WHAT IS YOUR CHOICE? 1
HE HAS UNSEATED YOU(THUD!)
YOU BROKE YOUR LANCE(CRACK...)
TOO BAD, YOU LOST. HOPE YOUR INSURANCE WAS PAID UP.
SORRY, BETTER LUCK NEXT JOUST.  미안합니다. 다음 시합의 행운을 빕니다.
Ok
```

Jumping Balls (점핑 볼)

이 게임은, 옆으로 9개의 구멍이 나란히 있는 판(board) 위에서 한다. 처음에 오른쪽의 네 구멍에는 금공, 왼쪽의 네 구멍에는 은공이 들어 있다. 이 공들을 되도록 적은 횟수로 서로 바꿔 놓는다. 전용 판이 없으면, coin이나 tip으로 대용할 수 있다.

공은, 비어 있는 구멍으로 하나 이동하든가, 하나의 공을 건너뛰어 이동한다. 둘 이상의 공을 건너뛸 수는 없다. 구멍에는 왼쪽부터 차례대로 번호가 붙어 있다. 게임을 시작할 때 비어 있는 구멍은 5번이다. 처음에는 6→5, 4→5, 3→5, 7→5 중 어느 하나로 움직이게 된다.

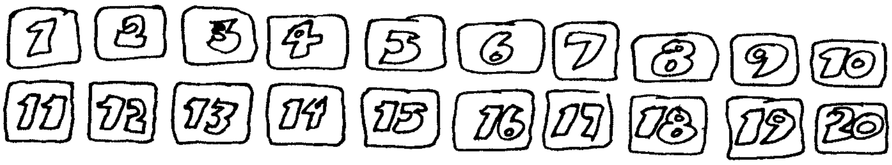
이 프로그램에서는, 당신의 실력을 평가하거나 하지는 않지만, 아래에 보인 RUN보다 적은 횟수로 성공한다면, 당신의 게임 실력은 상당히 우수하다.

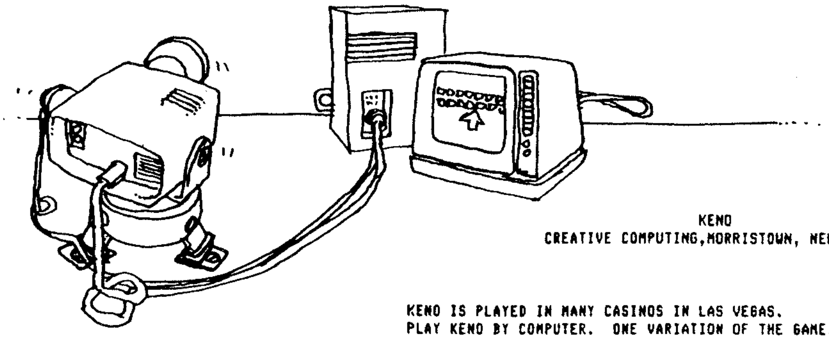
The original author of this game was Anthony Rizzolo.

```
RUN
                    JUMPING BALLS
                  CREATIVE COMPUTING
                MORRISTOWN, NEW JERSEY


INSTRUCTIONS? YES   설명이 필요합니까?
     IN THIS GAME YOU ARE GIVEN 8 BALLS ON A 9 HOLE
BOARD.  THE OBJECT IS TO REVERSE THE ORDER OF THE BALLS
THE 'S' ARE SILVER BALLS AND THE 'G' ARE GOLD.
YOU MUST GET THE SILVER TO WHERE THE GOLD ARE AND
THE GOLD TO WHERE THE SILVER ARE.  THE SPACE IS   금공과 은공을 바꿔
A PERIOD ON THE BOARD.                            놓습니다.
GOOD LUCK!!  HERE IS THE BOARD: 행운을 빕니다!
S S S S . G G G G MOVE? 6,5     보드는 다음과 같습니다.
S S S S G . G G G MOVE? 4,6
S S S . G S G G G MOVE? 5,4
S S S G . S G G G MOVE? 7,5
S S S G G S . G G MOVE? 6,7
S S S G G . S G G MOVE? 5,6
S S S G . G S G G MOVE? 6,5
S S S G G . S G G MOVE? 5,6
S S S G . G S G G MOVE? 3,5
S S . G S G S G G MOVE? 4,3
S S G . S G S G G MOVE? 6,4
S S G G S . S G G MOVE? 8,6
S S G G S G S . G MOVE? 7,8
S S G G S G . S G MOVE? 5,6
SPACE 6 IS OCCUPIED   6은 채워져 있읍니다.
MOVE? 5,7
S S G G . G S S G MOVE? 4,5
S S G . G G S S G MOVE? 2,4
S . G S G G S S G MOVE? 3,2
S G . S G G S S G MOVE? 1,3
. G S S G G S S G MOVE? 2,1
G . S S G G S S G MOVE? 3,2
G S . S G G S S G MOVE? 5,3
G S G S . G S S G MOVE? 6,5
G S G S G . S S G MOVE? 7,6
G S G S G S . S G MOVE? 9,7
G S G S G S[illegible]S . MOVE? 8,9
G S G S G S G . S MOVE? 6,8
G S G S G . G S S MOVE? 4,6
G S G . G S G S S MOVE? 2,4
G . G S G S G S S MOVE? 3,2
G G . S G S G S S MOVE? 5,3
G G G S . S G S S MOVE? 7,5
G G G S G S . S S MOVE? 6,7
G G G S G . S S S MOVE? 4,6
G G G . G S S S S MOVE? 5,4
YOU WIN!!!                                 성공!
YOU COMPLETED THE GAME IN  34  MOVES!!!!  34 수로 끝났읍니다.
AGAIN? NO
Ok
```

```
10 PRINT TAB( 22);"JUMPING BALLS"
20 PRINT TAB( 20);"CREATIVE COMPUTING"
30 PRINT TAB( 18);"MORRISTOWN, NEW JERSEY"
40 PRINT:PRINT:PRINT
1040 DIM Q(9,1)
1050 PRINT "INSTRUCTIONS";
1060 INPUT A$
1065 PRINT
1070 IF LEFT$(A$,1)="N" THEN 1150
1080 PRINT "     IN THIS GAME YOU ARE GIVEN 8 BALLS ON A 9 HOLE"
1090 PRINT "BOARD.  THE OBJECT IS TO REVERSE THE ORDER OF THE BALLS"
1100 PRINT "THE 'S' ARE SILVER BALLS AND THE 'G' ARE GOLD."
1110 PRINT "YOU MUST GET THE SILVER TO WHERE THE GOLD ARE AND"
1120 PRINT "THE GOLD TO WHERE THE SILVER ARE.  THE SPACE IS"
1125 PRINT "A PERIOD ON THE BOARD."
1130 PRINT "GOOD LUCK!!  HERE IS THE BOARD:"
1135 PRINT
1140 S=0
1150 FOR X=1 TO 4
1160 LET Q(X,1)=1
1170 NEXT X
1180 LET Q(5,1)=0
1190  FOR X=6 TO 9
1200  LET Q(X,1)=2
1210  NEXT X
1220  LET A$=" SG"
1230  FOR X=1 TO 9
1240 PRINT MID$(A$,Q(X,1)+1,1);
1250  PRINT " ";
1260  NEXT X
1265 S=S+1
1270  PRINT "   MOVE";
1280  INPUT M,M1
1290 IF M<=9 AND M>=1 AND M1<=9 AND M1>=1 THEN 1320
1300  PRINT "ILLEGAL MOVE."
1310  GOTO 1270
1320  REM:      CHECK FOR LEGAL MOVE
1330  IF M+1=M1 OR M-1=M1 THEN 1430
1340  REM:     SUBROUTINE FOR CHECKING JUMPS
1350  IF M=9 THEN 1390
1360  IF M=1 THEN 1410
1370  IF Q(M+1,1)=0 OR Q(M-1,1)=0 THEN 1300
1380  GOTO 1420
1390  IF Q(M-1,1)=0 THEN 1300
1400  GOTO 1420
1410  IF Q(M+1,1)=0 THEN 1300
1420  IF M+2<>M1 AND M-2<>M1 THEN 1300
1430  IF Q(M,1)<>0 THEN 1460
1440  PRINT "NOTHING AT SPACE";M;CHR$(8);"."
1450  GOTO 1270
1460  IF Q(M1,1)=0 THEN 1490
1470  PRINT "SPACE";M1;"IS OCCUPIED."
1480  GOTO 1270
1490  LET Q(M1,1)=Q(M,1)
1500  LET Q(M,1)=0
1510 X9=Q(1,1)+Q(2,1)+Q(3,1)+Q(4,1)
1512 Y9=Q(6,1)+Q(7,1)+Q(8,1)+Q(9,1)
1514 IF X9=8 AND Y9=4 THEN 1530
1520 GOTO 1230
1530 PRINT:PRINT "YOU WIN!!!"
1535 PRINT "YOU COMPLETED THE GAME IN";S;"MOVES!!!!"
1540  PRINT "AGAIN";
1550 INPUT A$
1560 IF LEFT$(A$,1)="Y" THEN 1130
1570 END
```

Keno (키 노)





LLS*

```
                    KENO
      CREATIVE COMPUTING,MORRISTOWN, NEW JERSEY

KENO IS PLAYED IN MANY CASINOS IN LAS VEGAS.
PLAY KENO BY COMPUTER.  ONE VARIATION OF THE GAME, UTILIZES
THE RANDOM NUMBER GENERATOR.

THE PLAYER CHOOSES 8 DIFFERENT NUMBERS FROM 1 TO 80  1~80 중에서 8개의 숫자를
INCLUSIVE, AND BETS $1.20.  THE COMPUTER WILL SELECT  선택합니다. 컴퓨터는 20개
20 NUMBERS AT RANDOM AND WILL ELIMINATE DUPLICATES WHICH  의 숫자를 선택합니다.
MAY OCCUR .  ANOTHER NUMBER  WILL BE INSERTED IN ITS PLACE
SO THAT THE COMPUTER WILL OUTPUT 20 DIFFERENT NUMBERS.


HERE WE GO!!!
THE COMPUTER WILL OUTPUT A ? MARK.  TYPE A NUMBER FROM
1 TO 80, INCLUSIVE, AND PRESS THE RETURN KEY. REPEAT THIS
PROCESS UNTIL THE ? MARK IS NO LONGER SHOWN.  마크하시오.
? 1
? 23
? 24
? 35
? 46
? 77
? 65
? 2


 THE COMPUTER WILL SELECT 20 NUMBERS AT RANDOM.  THE BELL
TONE INDICATES IT IS IN THE PROCESS OF SELECTING THE NUMBERS.
컴퓨터가 20개의 수를 난수로 선택합니다.  그것이 당신이 선택한 수에 포함되
어 있으면 벨이 울립니다.
YOUR NUMBERS ARE: 당신의 숫자는
 1  23  24  35  46  77  65  2


 THE COMPUTER HAS SELECTED THE FOLLOWING  NUMBERS: 컴퓨터가 선택한 숫자는
 33  5  74  69  44  7  45  48  80  36  45  50  26  25  38  77  6  49
 15  51

THE PROGRAM WILL COMPARE YOUR NUMBERS WITH THE
NUMBERS THE COMPUTER HAS SELECTED.


LISTEN FOR THE BELL TONE--- EACH RING INDICATES ANOTHER
CORRECT GUESS BY YOU.
YOU HAVE GUESSED THE FOLLOWED NUMBERS:  맞는 것은 다음 숫자입니다.



 77

YOU CAUGHT 1 NUMBERS OUT OF 8--        하나뿐이라면, 맞았더라도 배당은 없습니다.
NOT ENOUGH CORRECT GUESSES-- 'SO SOLLY', NO PAYOFF.
```

이것은, Nevada주의 카지노에서 만들어진 게임이다.

플레이어는, 1부터 80까지의 숫자 중에서 14개의 수를 선택한다. 이것을 'mark 한다'고 한다. 카지노 쪽에서는 'spot' 라는 수를 20개 미리 정해 놓고 mark가 끝나면, 그 20개의 수를 공개한다. 그런 다음에, spot와 일치한 mark의 갯수만큼 배당된다. keno는 게임 방법이 간단한 데에 비해 배당($25,000)이 높으므로, 라스베가스에서는 대단히 인기가 높다. 그러나 높은 배당이 나올 확률이 지극히 낮아, 오히려 다른 게임보다 카지노 쪽에 돈을 벌게 해 주고 있다.

이 컴퓨터판 keno에서는 8개의 수를 mark하게 되어 있다. 이와 같은 방식의 keno에서는 60센트의 배수로 돈을 걸게 되는데, 여기서는 일률적으로 2달러로 한다. 배당은 다음과 같다.

Spots	Payoff
5	$10.00
6	$100.00
7	$2,200.00
8	$25,000.00

맞은 spot가 4개 이하이면 지불을 받지 못한다.

This version of Keno was originally written by Vincent Fazio

```
DO YOU WANT TO PLAY KENO AGAIN?  다시 한 번 하겠읍니까?
TYPE 'YES' OR 'NO'
? YES


HERE WE GO!!!
THE COMPUTER WILL OUTPUT A ? MARK.  TYPE A NUMBER FROM
1 TO 80, INCLUSIVE, AND PRESS THE RETURN KEY. REPEAT THIS
PROCESS UNTIL THE ? MARK IS NO LONGER SHOWN.
? 23
? 65
? 7
? 25
? 46
? 75
? 1
? 55


 THE COMPUTER WILL SELECT 20 NUMBERS AT RANDOM.  THE BELL
TONE INDICATES IT IS IN THE PROCESS OF SELECTING THE NUMBERS.


YOUR NUMBERS ARE:
 23  65  7  25  46  75  1  55


 THE COMPUTER HAS SELECTED THE FOLLOWING  NUMBERS:
 45  26  12  38  9  18  23  69  12  8  6  51  46  73  71  14  35  79
 61  58

THE PROGRAM WILL COMPARE YOUR NUMBERS WITH THE
NUMBERS THE COMPUTER HAS SELECTED.


LISTEN FOR THE BELL TONE--- EACH RING INDICATES ANOTHER
CORRECT GUESS BY YOU.
YOU HAVE GUESSED THE FOLLOWED NUMBERS:
 23



 46


YOU CAUGHT 2 NUMBERS OUT OF 8--
NOT ENOUGH CORRECT GUESSES-- 'SO SOLLY', NO PAYOFF.


DO YOU WANT TO PLAY KENO AGAIN?
TYPE 'YES' OR 'NO'
? NO
THAT'S ALL FOR NOW.  PLAY KENO AGAIN, BE SEEING YOU.
OK
```

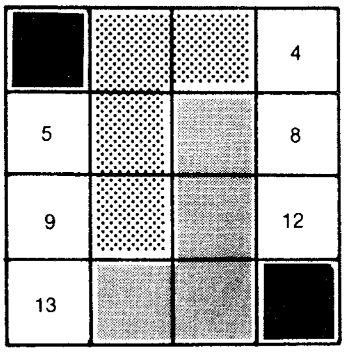
```
1 PRINT CHR$(26);TAB( 34)"KENO":PRINT
2 PRINT TAB( 15)" CREATIVE COMPUTING,MORRISTOWN, NEW JERSEY"
3 DIM N(21),M(23),A(8)
9 PRINT:PRINT:PRINT
10 PRINT"KENO IS PLAYED IN MANY CASINOS IN LAS VEGAS."
13 PRINT "PLAY KENO BY COMPUTER.  ONE VARIATION OF THE GAME, UTILIZES"
16 PRINT"THE RANDOM NUMBER GENERATOR."
19 PRINT
20 PRINT"THE PLAYER CHOOSES 8 DIFFERENT NUMBERS FROM 1 TO 80"
23 PRINT"INCLUSIVE, AND BETS $1.20.  THE COMPUTER WILL SELECT"
26 PRINT"20 NUMBERS AT RANDOM AND WILL ELIMINATE DUPLICATES WHICH"
29 PRINT"MAY OCCUR.  ANOTHER NUMBER WILL BE INSERTED IN ITS PLACE"
32 PRINT"SO THAT THE COMPUTER WILL OUTPUT 20 DIFFERENT NUMBERS."
38 PRINT:PRINT:PRINT "HERE WE GO!!!"
40 PRINT"THE COMPUTER WILL OUTPUT A ? MARK.  TYPE A NUMBER FROM "
43 PRINT"1 TO 80, INCLUSIVE, AND PRESS THE RETURN KEY.  REPEAT THIS"
46 PRINT"PROCESS UNTIL THE ? MARK IS NO LONGER SHOWN."
48 FOR I=1 TO 8
50 INPUT A(I)
51 IF A(I)>80  THEN 56
53 IF A(I)=0 THEN 56
54 IF A(I)<0 THEN 56
55 GOTO 57
56 PRINT"TYPE A NUMBER FROM 1 TO 80, INCLUSIVE, PLEASE.": GOTO 50
57 NEXT I
58 C=0:FOR K=1 TO 7
59 FOR J=K TO 7
60 X=A(K):Y=A(J+1)
61 IF X<>Y THEN 72
62 C=C+1
63 PRINT"A DUPLICATE NUMBER HAS BEEN DETECTED IN YOUR INPUT."
64 PRINT"TYPE ANOTHER NUMBER, PLEASE.":INPUT Y
65 IF Y=0 THEN 70
66 IF Y>80 THEN 70
67 IF Y<0 THEN 70
68 A(J+1)=Y
69 GOTO 61
70 PRINT "TYPE A NUMBER FROM 1 TO 80, INCLUSIVE, PLEASE."
71 GOTO 64
72 NEXT J
73 NEXT K :PRINT:PRINT
75 IF C=0 THEN 88
76 GOTO 58
88 PRINT" THE COMPUTER WILL SELECT 20 NUMBERS AT RANDOM.  THE BELL "
91 PRINT"TONE INDICATES IT IS IN THE PROCESS OF SELECTING THE NUMBERS."
100 FOR L=1 TO 20
103 N(L)=INT(80*RND(80)+1)
106 M(L)=N(L)
109 NEXT L
110 L=21
112 FOR K=1 TO 20
115 FOR J=K TO L-1
118 X=M(K)
121 Y=M(J+1)
124 IF X<>Y  THEN 139
130 M(J+1)=INT(80*RND(1)+1)
133 Y=M(J+1)
136 GOTO 124
139 PRINT CHR$(7);
142 NEXT J
145 NEXT K
147 PRINT:PRINT
148 PRINT "YOUR NUMBERS ARE:"
151 FOR I=1 TO 8
154 PRINT A(I);
157 NEXT I:PRINT:PRINT
160 PRINT" THE COMPUTER HAS SELECTED THE FOLLOWING  NUMBERS:"
163 FOR L=1 TO 20
167 PRINT M(L);
170 NEXT L:PRINT:PRINT
173 PRINT"THE PROGRAM WILL COMPARE YOUR NUMBERS WITH THE "
176 PRINT"NUMBERS THE COMPUTER HAS SELECTED."
179 PRINT:PRINT
182 PRINT"LISTEN FOR THE BELL TONE--- EACH RING INDICATES ANOTHER"
185 PRINT "CORRECT GUESS BY YOU.":
188 PRINT "YOU HAVE GUESSED THE FOLLOWED NUMBERS:"
191 G=0
194 I=1
197 FOR J=1 TO 20
200 X=A(I)
203 Y=M(J)
206 IF X=Y THEN 213
209 NEXT J
210 GOTO 225
213 PRINT CHR$(7);
216 FOR V1=1 TO 3976:NEXT V1
219 PRINT A(I);
222 G=G+1
225 I=I+1:PRINT:IF I<>8 THEN 197
228 IF G<5 THEN 242
231 IF G=5 THEN 261
234 IF G=6 THEN 267
237 IF G=7 THEN 273
240 IF G=8 THEN 279
242 PRINT "YOU CAUGHT";G;"NUMBERS OUT OF 8 --"
243 PRINT "NOT ENOUGH CORRECT GUESSES -- 'SO SOLLY', NO PAYOFF."
245 PRINT:PRINT
246 PRINT "DO YOU WANT TO PLAY KENO AGAIN";
250 C=0
251 INPUT X$
252 IF LEFT$(X$,1)="Y" THEN 38
253 IF LEFT$(X$,1)="N" THEN 299
254 C=C+1
255 IF C=3 THEN 299
256 PRINT "TYPE 'YES' OR 'NO'"
257 GOTO 251
258 IF LEFT$(X$,1)="N" THEN 299
259 PRINT "TYPE YES OR NO PLEASE!!"
261 PRINT "YOU CAUGHT";G;"NUMBERS OUT OF 8 -- YOU WIN $10.00"
264 PRINT:PRINT:GOTO 246
267 PRINT "YOU CAUGHT";G;"NUMBERS OUT OF 8 -- YOU WIN $100.00"
270 PRINT:PRINT:GOTO 246
273 PRINT "YOU CAUGHT ";G;"NUMBERS OUT OF 8 -- YOU WIN $2,200.00"
276 PRINT:PRINT:GOTO 246
279 PRINT "YOU CAUGHT ";G;"NUMBERS OUT OF 8 -- YOU WIN $25,000.00"
282 PRINT "8 OUT OF 8 DOES NOT OCCUR TOO OFTEN, LUCKY."
285 PRINT:PRINT:GOTO 246
299 PRINT:PRINT "THAT'S ALL FOR NOW.  PLAY KENO AGAIN, BE SEEING YOU.":PRINT
300 END
```

L Game (L 게임)

4×4 의 격자형으로 구획되어진 판 위에서 플레이하는 2인용의 단순한 전략 게임이다. 플레이어는, 각각 4구획으로 된 'L'자(字)를 가진다. 그리고 두 개의 'box'가 있는데, 이것은 두 플레이어가 사용한다. 각 구획에는 아래 그림과 같이 번호를 붙여 놓는다.

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

게임은 항상 다음과 같은 위치에서 시작된다.



규칙은 간단하다. L과 box를 사용해서 상대를 봉쇄한 쪽이 승리한다. 그런데, 상대를 봉쇄하려 한 수가 오히려 상대를 이롭게 하는 수가 되는 경우도 있어 꽤 어렵다.

먼저, 한 사람이 자기의 L을 집어들어 다른 위치에 놓는다. L은 90°로 회전시킨다거나 여러 위치로 놓을 수 있지만, 겹치게 하거나, 비져나오게 하면 안 된다. 더 이상 L을 움직일 수 없게 되면 진다. L을 이동시켰으면, 다음에는 박스이다. 박스는 둘 다 움직여도 좋고, 하나만 움직여도 좋고, 또는 움직이지 않아도 상관없다. 박스를 능숙하게 사용하는 것이 게임에 성공하는 비결이다.

The computer version of the L Game was written by Bill Gardner.

```
RUN
                         L-GAME
                   CREATIVE COMPUTING
                 MORRISTOWN, NEW JERSEY


INSTRUCTIONS? YES   설명은?

     L-game is a simple strategic game played on a 4x4
grid by two opposing players, in this case between you
and the computer.  The grid is numbered as follows:
                                         격자판의 넘버입니다.

================
: 1:: 2:: 3:: 4:
================
================
: 5:: 6:: 7:: 8:
================
================
: 9::10::11::12:      The game is played with four pieces; both
================    you and the computer have one 'L', and there are
================    two 'BOXES' which are used by both players.
:13::14::15::16:    play always begins with the pieces on the board
================    in the following position:  이 배치에서 시작합니다.

                    ****////////====
                    *  *////////: 4:
                    ****////////====
                    ====////0000====
                    : 5:////0000: 8:
                    ====////0000====
                    ====////0000====
                    : 9:////0000:12:
                    ====////0000====
                    ====00000000****
                    :13:00000000*  *
                    ====00000000****

                    (computer is /, you are O)  (컴퓨터는 /, 당신은 O)

     The object of the game is to position your own
L and the boxes to prevent the computer from moving
its L.  Of course, it is trying to do the same to you!
To move, you must simply enter the four coordinates
where you want to place your L.  It must remain on the
board and must not cover any other pieces.  You must
move your L!  If you cannot find a new position
for your L, then the computer has effectively pinned your
L and it wins the game.
     Assuming you have successfully moved your L, you now
have the option of moving the boxes.  You may move one,
two, or none of the boxes by simply entering the coordinates
where you want to put them.  To leave a box where it is,  박스를 움직이지 않을 경우에는
enter its present position.                               그대로의 위치를 입력합니다.
     After you move the boxes, it is up to the computer
to find a move for its L and play continues in the same
manner.  Remember that you must not only try to pin the
computer's L but also keep your own L from being pinned.
Also, it is easier to play the game with your own board
than the computer printout.  To resign, enter 0,0,0,0
in place of your move.  GOOD LUCK!

BOARD PRINTOUT? YES   보드를 프린트하겠읍니까?
DO YOU WISH TO START? NO   먼저하겠읍니까?

COMPUTER MOVES TO  2   6   10   9       컴퓨터는 2, 6, 10, 9 로 옮기고.
         MOVES BOXES TO  12  AND  16   박스를 12와 16으로 옮깁니다.

====////========
: 1:////: 3:: 4:
====////========                당신은 어디로 옮깁니까? YOUR MOVE FOR L? 4,3,7,11
====////0000====                              박스는? YOUR MOVE FOR THE BOXES? 1,14
: 5:////0000: 8:                                      O.K.
====////0000====
////////0000****                                      ****////00000000
////////0000*  *                                      *  *////00000000
////////0000****                                      ****////00000000
====00000000****                                      ====////0000====
:13:00000000*  *                                      : 5:////0000: 8:
====00000000****                                      ====////0000====
                                                      ////////0000====
                                                      ////////0000:12:
                                                      ////////0000====
                                                      ================
                                                      :13:*  *:15::16:
                                                      ================
```

```
YOUR MOVE FOR L? 3,7,11,12
YOUR MOVE FOR THE BOXES? 2,10
O.K.

========0000====
: 1:*  *0000: 4:
========0000====
////====0000====
////: 6:0000: 8:
////====0000====
////****00000000
////*  *00000000
////****00000000
////////========
////////:15::16:
////////========


COMPUTER MOVES TO  5   9   13   6
         MOVES BOXES TO  10  AND  8

========0000====
: 1:: 2:0000: 4:
========0000====
////////0000****
////////0000*  *
////////0000****
////****00000000
////*  *00000000
////****00000000
////============
////:14::15::16:
////============


YOUR MOVE FOR L? 7,11,15,16
YOUR MOVE FOR THE BOXES? 10,3
O.K.

==========****==
: 1:: 2:*  *: 4:
==========****==
////////0000====
////////0000: 8:
////////0000====
////****0000====
////*  *0000:12:
////****0000====
////====00000000
////:14:00000000
////====00000000


COMPUTER MOVES TO  1   5   9   2
         MOVES BOXES TO  6  AND  10

////////========
////////: 3:: 4:
////////========
////****0000====
////*  *0000: 8:
////****0000====
////****0000====
////*  *0000:12:
////****0000====
========00000000
:13::14:00000000
========00000000


YOUR MOVE FOR L? 11,15,14,13
YOUR MOVE FOR THE BOXES? 6,10
O.K.

////////========
////////: 3:: 4:
////////========
////****========
////*  *: 7:: 8:
////****========
////****0000====
////*  *0000:12:
////****0000====
000000000000====
000000000000:16:
000000000000====


COMPUTER MOVES TO  1   2   3   7
         MOVES BOXES TO  6  AND  10

////////////====
////////////: 4:
////////////====
====****////====
: 5:*  *////: 8:
====****////====
====****0000====
: 9:*  *0000:12:
====****0000====
000000000000====
000000000000:16:
000000000000====


YOUR MOVE FOR L? 4,8,11,12
YOUR MOVE FOR THE BOXES? 6,14
O.K.

////////////0000
////////////0000
////////////0000
====****////0000
: 5:*  *////0000
====****////0000
========00000000
: 9::10:00000000
========00000000
====****========
:13:*  *:15::16:
====****========


COMPUTER MOVES TO  1   5   9   10
         MOVES BOXES TO  6  AND  7

////========0000
////: 2:: 3:0000
////========0000
////********0000
////*  **  *0000
////********0000
////////00000000
////////00000000
////////00000000
================
:13::14::15::16:
================


YOUR MOVE FOR L? 11,13,12,14
ILLEGAL MOVE FOR L.


YOUR MOVE FOR L? 11,13,14,15
YOUR MOVE FOR THE BOXES? 2,7
O.K.

////****========
////*  *: 3:: 4:
////****========
////====****====
////: 6:*  *: 8:
////====****====
////////0000====
////////0000:12:
////////0000====
000000000000====
000000000000:16:
000000000000====


COMPUTER MOVES TO  4   8   12   3
         MOVES BOXES TO  6  AND  7

========////////
: 1:: 2:////////
========////////
====********////
: 5:*  **  *////
====********////
========0000////
: 9::10:0000////
========0000////
000000000000====
000000000000:16:
000000000000====


YOUR MOVE FOR L? 5,9,10,11
YOUR MOVE FOR THE BOXES? 2,7
O.K.

====****////////
: 1:*  *////////
====****////////
0000====****////
0000: 6:*  *////
0000====****////
000000000000////
000000000000////
000000000000////
================
:13::14::15::16:
================


COMPUTER MOVES TO  8   12   16   15
         MOVES BOXES TO  6  AND  7

================
: 1:: 2:: 3:: 4:
================
0000********////
0000*  **  *////
0000********////
000000000000////
000000000000////
000000000000////
========////////
:13::14:////////
========////////


YOUR MOVE FOR L? 11,10,9,13
YOUR MOVE FOR THE BOXES? 3,7
O.K.

========****====
: 1:: 2:*  *: 4:
========****====
========****////
: 5:: 6:*  *////
========****////
000000000000////
000000000000////
000000000000////
0000====////////
0000:14:////////
0000====////////


COMPUTER MOVES TO  14   15   16   12
         MOVES BOXES TO  6  AND  7

================
: 1:: 2:: 3:: 4:
================
====********====
: 5:*  **  *: 8:
====********====
000000000000////
000000000000////
000000000000////
0000////////////
0000////////////
0000////////////


YOUR MOVE FOR L? 5,9,10,11
YOUR MOVE FOR THE BOXES? 3,8
O.K.

========****====
: 1:: 2:*  *: 4:
========****====
0000========****
0000: 6:: 7:*  *
0000========****
000000000000////
000000000000////
000000000000////
====////////////
:13:////////////
====////////////

CONGRATULATIONS! YOU HAVE WON.
```

축하합니다. 당신이 이겼읍니다.

```
PLAY AGAIN? NO
```

다시 한 번 하겠읍니까?

```
10 PRINT TAB( 26);"L-GAME"
11 PRINT TAB( 20);"CREATIVE COMPUTING"
12 PRINT TAB( 18);"MORRISTOWN, NEW JERSEY"
13 PRINT:PRINT:PRINT
20 DIM C(4),O(4),T(4),B(16),N(16),M(100)
25 PRINT "INSTRUCTIONS";
30 INPUT A$
35 IF LEFT$(A$,1)="Y" THEN 3000
40 PRINT "BOARD PRINTOUT";
45 INPUT A$
50 IF LEFT$(A$,1)="N" THEN 65
55 LET F2=0
60 GOTO 70
65 LET F2=1
70 GOSUB 100
80 GOTO 210
100 REM INITIALIZE DATA
101 REM B1,B2 = POSITIONS OF BOXES
102 REM C(1,2,3,4) = COMPUTER'S POSITION (L)
103 REM O(1,2,3,4) = OPPONENT'S POSITION (L)
104 REM T(1,2,3,4) = 6,7,10,11 = CENTER POSITIONS
105 REM B(1,...16) = BOARD:
106 REM      B(X)=0   EMPTY
107 REM      B(X)=1   OPPONENT'S L
108 REM      B(X)=2   COMPUTER'S L
109 REM      B(X)=3   BOX
115 RESTORE
120 DATA 1,16,2,7,6,6,11,7,10,15,10,3,14,11
130 DATA 3,2,2,0,0,2,1,0,0,2,1,0,0,1,1,3
140 READ B1,B2
150 FOR X=1 TO 4
160 READ C(X),O(X),T(X)
170 NEXT X
180 FOR X=1 TO 16
190 READ B(X)
200 NEXT X
205 RETURN
210 PRINT "DO YOU WISH TO START";
215 INPUT A$
220 IF LEFT$(A$,1)="N" THEN 500
230 REM OPPONENT'S MOVE
235 GOSUB 2270
240 PRINT
245 PRINT "YOUR MOVE FOR L";
250 INPUT D(1),D(2),D(3),D(4)
255 IF ABS(D(1))+ABS(D(2))+ABS(D(3))+ABS(D(4))=0 THEN 1280
260 REM BUBBLE SORT
265 FOR X=1 TO 4
270 FOR Y=2 TO 4
275 IF D(Y)>D(Y-1) THEN 295
280 LET Z=D(Y)
285 LET D(Y)=D(Y-1)
290 LET D(Y-1)=Z
295 NEXT Y
300 NEXT X
305 REM CHECK LEGALITY
310 FOR X=1 TO 4
315 LET N(X)=D(X)
320 NEXT X
325 LET N1=4
330 LET F1=0
335 GOSUB 1800
340 IF M1<>4 THEN 1220
345 FOR X=1 TO 4
350 IF B(M(X))>1 THEN 1220
355 NEXT X
360 FOR X=1 TO 4
365 LET B(O(X))=0
370 NEXT X
375 FOR X=1 TO 4
380 LET B(M(X))=1
385 LET O(X)=M(X)
390 NEXT X
395 LET B(B1)=0
400 LET B(B2)=0
405 PRINT "YOUR MOVE FOR THE BOXES";
410 INPUT X,Y
415 IF ABS(X)+ABS(Y)<>X+Y THEN 1250
416 IF X=Y THEN 1250
420 IF B(X)+B(Y)>0 THEN 1250
430 LET B1=X
440 LET B2=Y
450 LET B(B1)=3
460 LET B(B2)=3
470 PRINT "O.K."
475 GOSUB 2270
480 REM COMPUTER'S MOVE
490 REM REMOVE C(1-4) FROM BOARD
500 FOR X=1 TO 4
510 LET B(C(X))=0
520 NEXT X
530 GOSUB 1420
540 LET F1=1
550 LET N1=Z
560 GOSUB 1800
570 IF M1=0 THEN 1300
580 REM FIND MOVE WITH BEST CENTER COVERAGE
585 GOSUB 1370
590 FOR E=0 TO M1-4 STEP 4
600 FOR F=1 TO 4
610 FOR G=1 TO 4
620 IF M(E+F)<>T(G) THEN 640
630 LET N(E/4+1)=N(E/4+1)+1
640 NEXT G
650 NEXT F
660 NEXT E
670 GOSUB 1500
680 REM PUT MOVE IN C(1-4)
690 LET Y=(Z-1)*4
700 FOR X=1 TO 4
710 LET C(X)=M(X+Y)
720 LET B(C(X))=2
730 NEXT X
740 PRINT
750 PRINT "COMPUTER MOVES TO ";C(1);" ";C(2);" ";C(3);" ";C(4)
760 REM FIND MOVES FOR BOXES
765 REM REMOVE BOXES FROM BOARD
770 LET B(B1)=0
780 LET B(B2)=0
790 REM IS OPPONENT IN CORNER?
800 FOR I=1 TO 4
810 FOR J=1 TO 4
820 IF O(I)=T(J) THEN 870
830 NEXT J
840 NEXT I
845 REM OPPONENT IN CORNER, IGNORE CENTER
850 GOTO 1020
860 REM OPPONENT NOT IN CORNER, FILL CENTER WITH BOXES
870 FOR X=1 TO 4
880 IF B(T(X))>0 THEN 920
890 LET B1=T(X)
900 LET B(B1)=3
910 GOTO 950
920 NEXT X
930 REM NO SPACES IN CENTER
940 GOTO 1020
950 FOR X=1 TO 4
960 IF B(T(X))>0 THEN 1000
970 LET B2=T(X)
980 LET B(B2)=3
990 GOTO 1080
1000 NEXT X
1005 REM CENTER FILLED
1010 GOTO 1050
1015 REM BOTH BOXES TO BE POSITIONED
1020 GOSUB 1610
1030 LET B1=B3
1040 LET B(B1)=3
1045 REM ONE BOX TO BE POSITIONED
1050 GOSUB 1610
1060 LET B2=B3
1070 LET B(B2)=3
1080 PRINT TAB( 9);"MOVES BOXES TO ";B1;" AND ";B2
1081 FOR X=1 TO 4
1082 LET B(O(X))=1
1083 NEXT X
1085 GOSUB 2270
1090 REM CHECK FOR WIN
1100 FOR X=1 TO 4
1110 LET B(O(X))=0
1120 NEXT X
1130 GOSUB 1420
1140 LET F1=2
1150 LET N1=Z
1160 GOSUB 1800
1170 IF M1=0 THEN 1280
1180 FOR X=1 TO 4
1190 LET B(O(X))=1
1200 NEXT X
1210 GOTO 240
1220 PRINT "ILLEGAL MOVE FOR L."
1230 PRINT
1240 GOTO 240
1250 PRINT "ILLEGAL MOVE FOR BOX."
1260 PRINT
1270 GOTO 405
1280 PRINT "COMPUTER WINS!"
```

```
1290 GOTO 1310
1300 PRINT "CONGRATULATIONS! YOU HAVE WON."
1310 PRINT
1320 PRINT "PLAY AGAIN";
1325 INPUT A$
1330 IF LEFT$(A$,1)="Y" THEN 70
1340 GOTO 4000
1350 REM *** SUBROUTINES ***
1360 REM ERASE N(X)
1370 FOR X=1 TO 16
1380 LET N(X)=0
1390 NEXT X
1400 RETURN
1410 REM STORE LOCATIONS OF UNOCCUPIED POSITIONS IN N(X)
1420 LET Z=0
1430 FOR X=1 TO 16
1440 IF B(X)>0 THEN 1470
1450 LET Z=Z+1
1460 LET N(Z)=X
1470 NEXT X
1480 RETURN
1490 REM THIS SUBROUTINE RETURNS THE LOCATION OF THE LARGEST
1495 REM VALUE IN N(X).  IF A TIE EXISTS A RANDOM CHOICE IS MADE.
1500 LET Y=0
1510 LET Z=1
1520 FOR X=1 TO M1/4
1530 IF N(X)<Y THEN 1580
1540 IF N(X)>Y THEN 1560
1550 IF RND(1)>.5 THEN 1580
1560 LET Y=N(X)
1570 LET Z=X
1580 NEXT X
1590 RETURN
1600 REM BOX-FIND
1601 REM THIS SUBROUTINE FINDS THE MOVE FOR A BOX THAT WILL
1602 REM MOST RESTRICT THE OPPONENT'S L IN TERMS OF MOVES POSSIBLE.
1610 FOR X=1 TO 4
1620 LET B(O(X))=0
1630 NEXT X
1640 GOSUB 1420
1650 LET F1=2
1660 LET N1=Z
1670 GOSUB 1800
1680 GOSUB 1370
1690 FOR X=1 TO M1
1700 LET N(M(X))=N(M(X))+1
1710 NEXT X
1720 FOR X=1 TO 4
1730 LET N(O(X))=0
1740 NEXT X
1750 LET M1=64
1760 GOSUB 1500
1770 LET B3=Z
1780 RETURN
1790 REM L-FIND
1791 REM THIS SUBROUTINE CALCULATES ALL POSSIBLE MOVES FOR AN L GIVEN ALL
1792 REM EMPTY POSITIONS IN N(X).  IF F1=1, THE CURRENT POSITION OF THE
1793 REM COMPUTER'S L IS OMITTED.  OTHERWISE, THE CURRENT POSITION OF THE
1794 REM OPPONENT'S L IS OMITTED.  MOVES ARE RETURNED IN M(X), AND
1795 REM M1 IS THE LENGTH OF M(X).  (M1 = NUMBER OF MOVES * 4)
1800 LET M1=0
1810 LET J=4
1820 LET K=1
1830 GOSUB 1880
1840 LET J=1
1850 LET K=4
1860 GOSUB 1880
1870 RETURN
1880 LET P=0
1890 LET P=P+1
1900 LET A(1)=N(P)
1910 LET X=P
1920 LET X=X+1
1930 IF X>N1 THEN 2050
1940 IF N(X)-A(1)<>J THEN 1920
1950 LET A(2)=N(X)
1960 LET X=X+1
1970 IF X>N1 THEN 2050
1980 IF N(X)-A(2)<>J THEN 1960
1990 LET A(3)=N(X)
2000 FOR E=1 TO N1
2010 IF ABS(N(E)-A(1))=K THEN 2060
2020 IF ABS(N(E)-A(3))=K THEN 2060
2030 NEXT E
2040 GOTO 1890
2050 IF P<N1-2 THEN 1890
2055 RETURN
2060 LET A(4)=N(E)
2070 FOR F=1 TO 4
2080 IF A(F)/4<>INT(A(F)/4) THEN 2130
2090 FOR G=1 TO 4
2110 IF A(G)=A(F)+1 THEN 2030
2120 NEXT G
2130 NEXT F
2140 FOR Y=1 TO 4
2150 IF F1=1 THEN 2190
2160 IF A(Y)<>O(Y) THEN 2210
2170 NEXT Y
2180 GOTO 2030
2190 IF A(Y)<>C(Y) THEN 2210
2200 GOTO 2170
2210 FOR Y=1 TO 4
2220 LET M(M1+Y)=A(Y)
2230 NEXT Y
2240 LET M1=M1+4
2250 GOTO 2030
2260 REM BOARD PRINTOUT SUBROUTINE
2270 PRINT
2275 IF F2=1 THEN 2530
2280 FOR E=1 TO 13 STEP 4
2290 FOR F=1 TO 3
2300 FOR G=E TO E+3
2310 ON B(G)+1 GOTO 2320,2410,2430,2450
2320 IF F=2 THEN 2350
2330 PRINT "====";
2340 GOTO 2490
2350 PRINT ":";
2360 IF G>9 THEN 2390
2370 PRINT " ";CHR$(48+G);":";
2380 GOTO 2490
2390 PRINT "1";CHR$(38+G);":";
2400 GOTO 2490
2410 PRINT "OOOO";
2420 GOTO 2490
2430 PRINT "////";
2440 GOTO 2490
2450 IF F=2 THEN 2480
2460 PRINT "****";
2470 GOTO 2490
2480 PRINT "*  *";
2490 NEXT G
2500 PRINT
2510 NEXT F
2520 NEXT E
2530 PRINT
2540 RETURN
3000 REM INSTRUCTIONS
3010 PRINT CHR$(26)
3020 PRINT "     L-GAME IS A SIMPLE STRATEGIC GAME PLAYED ON A 4X4"
3030 PRINT "GRID BY TWO OPPOSING PLAYERS, IN THIS CASE BETWEEN YOU"
3040 PRINT "AND THE COMPUTER.  THE GRID IS NUMBERED AS FOLLOWS:"
3050 LET F2=0
3060 FOR X=1 TO 16
3070 LET B(X)=0
3080 NEXT X
3090 GOSUB 2270
3092 GOSUB 50000
3100 PRINT "     THE GAME IS PLAYED WITH FOUR PIECES; BOTH"
3110 PRINT "YOU AND THE COMPUTER HAVE ONE 'L', AND THERE ARE"
3120 PRINT "TWO 'BOXES' WHICH ARE USED BY BOTH PLAYERS."
3130 PRINT "PLAY ALWAYS BEGINS WITH THE PIECES ON THE BOARD"
3140 PRINT "IN THE FOLLOWING POSITION:"
3150 GOSUB 100
3160 GOSUB 2270
3165 PRINT "(COMPUTER IS /, YOU ARE O)"
3166 PRINT:PRINT:GOSUB 50000
3170 PRINT "     THE OBJECT OF THE GAME IS TO POSITION YOUR OWN"
3180 PRINT "L AND THE BOXES TO PREVENT THE COMPUTER FROM MOVING"
3190 PRINT "ITS L.  OF COURSE, IT IS TRYING TO DO THE SAME TO YOU!"
3200 PRINT "TO MOVE, YOU MUST SIMPLY ENTER THE FOUR COORDINATES"
3210 PRINT "WHERE YOU WANT TO PLACE YOUR L.  IT MUST REMAIN ON THE"
3220 PRINT "BOARD AND MUST NOT COVER ANY OTHER PIECES.  YOU MUST"
3230 PRINT "MOVE YOUR L!  IF YOU CANNOT FIND A NEW POSITION"
3240 PRINT "FOR YOUR L, THEN THE COMPUTER HAS EFFECTIVELY PINNED YOUR"
3250 PRINT "L AND IT WINS THE GAME."
3260 PRINT "     ASSUMING YOU HAVE SUCCESSFULLY MOVED YOUR L, YOU NOW"
3270 PRINT "HAVE THE OPTION OF MOVING THE BOXES.  YOU MAY MOVE ONE,"
3280 PRINT "TWO, OR NONE OF THE BOXES BY SIMPLY ENTERING THE COORDINATES"
3290 PRINT "WHERE YOU WANT TO PUT THEM.  TO LEAVE A BOX WHERE IT IS,"
3300 PRINT "ENTER ITS PRESENT POSITION."
3310 PRINT "     AFTER YOU MOVE THE BOXES, IT IS UP TO THE COMPUTER"
3320 PRINT "TO FIND A MOVE FOR ITS L AND PLAY CONTINUES IN THE SAME"
3330 PRINT "MANNER.  REMEMBER THAT YOU MUST NOT ONLY TRY TO PIN THE"
3340 PRINT "COMPUTER'S L BUT ALSO KEEP YOUR OWN L FROM BEING PINNED."
3350 PRINT "ALSO, IT IS EASIER TO PLAY THE GAME WITH YOUR OWN BOARD"
3360 PRINT "THAN THE COMPUTER PRINTOUT.  TO RESIGN, ENTER 0,0,0,0"
3370 PRINT "IN PLACE OF YOUR MOVE.  GOOD LUCK!"
3380 PRINT
3450 GOTO 40
4000 END
50000 LINE INPUT "ENTER 'RETURN' TO CONTINUE. ";XX$
50010 PRINT CHR$(26)
50020 RETURN
```

Life Expectancy

(수명 점치기)

이것은, 당신의 수명을 계산하는 프로그램이다.

먼저, 당신의 life style이나 환경에 대해 일련의 질문을 한 다음, 그에 따라 컴퓨터가 수명과 그 이상 살 수 있는 확률을 추산(推算)한다.

당신은 어쩌면 수명을 연장할 수 있는 방법을 생각하지 않을까? 성(性)을 바꿀 수야 없겠지만, 담배나 술의 양을 줄인다든지, 정신적인 스트레스를 즉시 푼다든지, 운동을 한다든지 여러 가지 방법이 있을 것이다.

This program was written by John E. Rogers.

```
RUN
                    LIFE EXPECTANCY
                   CREATIVE COMPUTING
                 MORRISTOWN, NEW JERSEY



THIS IS A LIFE EXPECTANCY TEST.
   DO YOU WISH INSTRUCTIONS? YES  설명이 필요합니까?


   THIS IS A TEST TO PREDICT YOUR LIFE EXPECTANCY.  I    다음 예와 같은
WILL ASK YOU A SERIES OF SHORT QUESTIONS, WHICH YOU WILL 식으로 질문에
REPLY BY TYPING IN THE CORRESPONDING ANSWER TO THE       답합니다.
QUESTION.

   예) EXAMPLE:  WHAT IS YOUR SEX?  성별은?
             M=MALE      남성
             F=FEMALE    여성
'M' AND 'F' ARE THE POSSIBLE REPLIES TO THE QUESTION, ANSWER
LIKE THIS:
            CHOOSE ONE OF THE LETTERS ABOVE? M
TYPING AN 'M' SIGNIFIES YOU ARE A MALE.  답은 맨 처음의 한 글자만
                                         입력하기 바랍니다.


  +++SEX+++
  ARE YOU MALE OR FEMALE?
  M= MALE.
  F= FEMALE.
CHOOSE ONE OF THE LETTERS ABOVE? M   위 단어 중 하나를 선택하시오.
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  +++LIFE STYLE+++
  WHERE DO YOU LIVE?  거주지는?                                  백만 도시
  B= IF YOU LIVE IN AN URBAN AREA WITH A POPULATION OVER 2 MIL.
  K= IF YOU LIVE IN A TOWN UNDER 10,000, OR ON A FARM. 농촌
  I= NEITHER. 기타
CHOOSE ONE OF THE LETTERS ABOVE? I

  HOW DO YOU WORK? 직업은?
  M= IF YOU WORK BEHIND A DESK. 사무직
  L= IF YOUR WORK REQUIRES HEAVY PHYSICAL LABOR. 과학자
  I= NONE OF THE ABOVE.  기타
CHOOSE ONE OF THE LETTERS ABOVE? I

  HOW LONG DO YOU EXERCISE STRENUOUSLY,
  (TENNIS, RUNNING, SWIMMING, ETC.)?   운동은(테니스, 육상, 수영 등)?
  F= FIVE TIMES A WEEK FOR AT LEAST A HALF HOUR. 1주일에 5회, 30분 이상씩.
  K= JUST TWO OR THREE TIMES A WEEK. 1주일에 2~3회
  I= DO NOT EXERCISE IN THIS FASHION. 기타
CHOOSE ONE OF THE LETTERS ABOVE? K

  WHO DO YOU LIVE WITH?  누구와 함께 살고 있읍니까?
  N= IF YOU LIVE WITH A SPOUSE, FRIEND, OR IN A FAMILY. 배우자, 친구, 가족
  H= IF YOU'VE LIVED ALONE FOR 1-10 YEARS SINCE AGE 25.
  B= FOR 11-20 YEARS.  11~20년간
  M= FOR 21-30 YEARS.  21~30년간              25세부터 1~10년간 혼자
  E= FOR 31-40 YEARS.  31~40년간              살고 있읍니다.
  M= MORE THAN 40 YEARS. 40년 이상
CHOOSE ONE OF THE LETTERS ABOVE? N

  +++PSYCHE+++   영혼
  DO YOU SLEEP MORE THAN 10 HOURS A NIGHT? 10시간 이상
  I= NO.                                   자고 있읍니까?
  E=YES.
CHOOSE ONE OF THE LETTERS ABOVE? I

  +++MENTAL STATE+++  성격
  M= IF YOU ARE INTENSE, AGGRESSIVE, OR EASILY ANGERED. 화를 잘 냅니다.
  L= IF YOU ARE EASY GOING, RELAXED, OR A FOLLOWER. 낙천가
  I= NEITHER.  기타
CHOOSE ONE OF THE LETTERS ABOVE? L

  +++HOW YOU FEEL+++  당신의 느낌
  ARE YOU HAPPY OR UNHAPPY?  행, 불행은?
  J= HAPPY.    행복
  G= UNHAPPY.  불행
  I= NEITHER.  기타
CHOOSE ONE OF THE LETTERS ABOVE? J

  +++FACTORS+++  요인
  HAVE YOU HAD A SPEEDING TICKET IN THE LAST YEAR? 작년에 속도 위반을
  H= YES.                                          한 적이 있읍니까?
  I=NO.
CHOOSE ONE OF THE LETTERS ABOVE? I

  +++INCOME+++  수입
  DO YOU EARN MORE THAN $50,000 A YEAR?  연수입 50,000달러 이상됩니까?
  G= YES.
  I=NO.
CHOOSE ONE OF THE LETTERS ABOVE? I

  +++SCHOOLING+++  학력
  J= IF YOU HAVE FINISHED COLLEGE.  대학 졸업
  L= IF YOU HAVE FINISHED COLLEGE WITH A GRADUATE 대학원 졸업
  OR PROFESSIONAL DEGREE.
  I= NOTHING LISTED. 그 이외
CHOOSE ONE OF THE LETTERS ABOVE? I
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```
+++AGE+++  연령
ARE YOU 65 OR OLDER AND STILL WORKING?  65 세를 지나도 일을 합니까?
L= YES.
I= NO.
CHOOSE ONE OF THE LETTERS ABOVE? I

+++HEREDITY+++ 유전
K= IF ANY GRANDPARENTS LIVED TO 85 YEARS OLD. 85 세 이상 산 조부모가 몇 분 계십니까?
O= IF ALL FOUR GRANDPARENTS LIVED TO 80 YEARS OLD. 모두 80 세 이상.
I= NO GRANDPARENTS QUALIFY IN THE ABOVE. 어느 쪽도 아닙니다.
CHOOSE ONE OF THE LETTERS ABOVE? I

HAS ANY PARENT DIED OF A STROKE OR HEART ATTACK
BEFORE THE AGE OF 50?            50 세 전에 심장 발작이나 뇌졸중으로
E= YES.                          돌아가신 부모가 있읍니까?
I= NO.
CHOOSE ONE OF THE LETTERS ABOVE? E

+++FAMILY DISEASES+++  가족의 질병
ANY PARENT, BROTHER, OR SISTER UNDER 50 HAS (OR HAD)
CANCER, A HEART CONDITION, OR DIABETES SINCE CHILDHOOD?
M= YES.          50 세 이상의 가족 중 병을 앓고 있는 사람, 또는
I= NO.           병(암, 심장병, 당뇨병)을 앓았던 사람이 있읍니까?
CHOOSE ONE OF THE LETTERS ABOVE? I

+++HEALTH+++  건강
HOW MUCH DO YOU SMOKE? 담배는?
A= IF YOU SMOKE MORE THAN TWO PACKS A DAY. 하루에 2 갑 이상
C= ONE TO TWO PACKS A DAY.                 하루에 1~2 갑
M= ONE HALF TO ONE PACK A DAY.             하루에 1/2~1 갑
I= DON'T SMOKE.                            피우지 않는다.
CHOOSE ONE OF THE LETTERS ABOVE? I

+++DRINK+++  술
DO YOU DRINK THE EQUIVALENT OF A   하루에 1/4 병 이상 마십니까?
QUARTER BOTTLE OF ALCOHOLIC BEVERAGE A DAY?
H= YES.
I= NO.
CHOOSE ONE OF THE LETTERS ABOVE? I

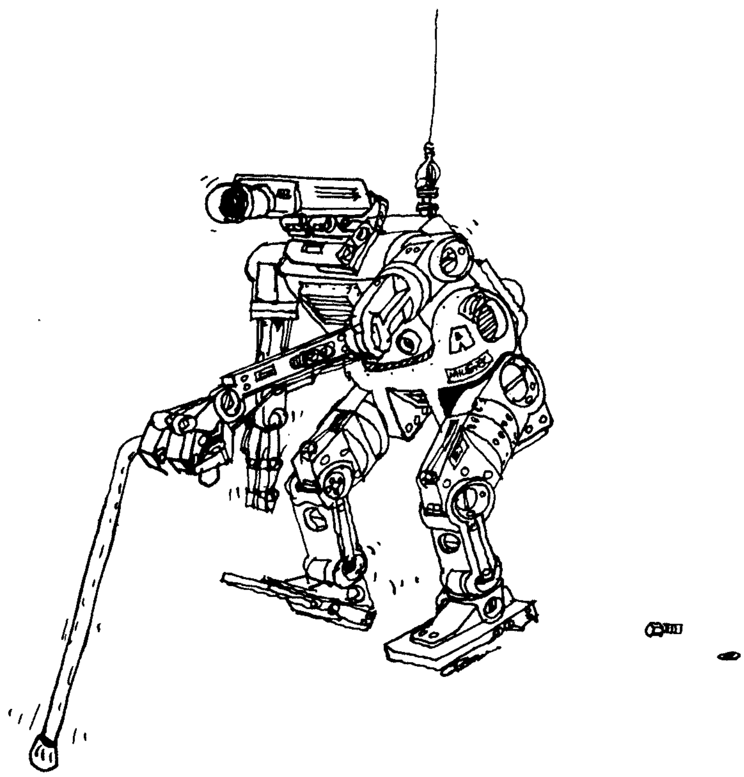
+++WEIGHT+++ 체중
A= IF YOU ARE OVERWEIGHT BY 50 POUNDS OR MORE. 50 파운드 이상
E= OVER BY 30-50 POUNDS. 30~50 파운드
G= OVER BY 10-30 POUNDS. 10~30 파운드
I= NOT OVER WEIGHT.      그 이하
CHOOSE ONE OF THE LETTERS ABOVE? I

+++CHECKUPS+++  건강 진단
DO YOU? IF YOU ARE A MALE OVER 40 HAVE AN ANNUAL CHECKUP?
K= YES.            40 세 이상의 남성의 경우, 매년 건강 진단을 받았읍니까?
I= IF NO OR NOT A MALE OR UNDER 40 YEARS OLD. 받지 않았거나, 여성,
CHOOSE ONE OF THE LETTERS ABOVE? I            또는 40 세 이하의 경우.

DO YOU? IF YOU ARE A WOMAN SEE A GYNECOLOGIST ONCE A YEAR?
K= YES.            여성의 경우, 1 년에 한 번은 산부인과에 가는가?
I= IF NO OR NOT A WOMAN. 안 간다. 또는 여성이 아닌 경우.
CHOOSE ONE OF THE LETTERS ABOVE? I

+++CURRENT AGE+++  현재의 연령
K= IF YOU ARE BETWEEN 30 AND 40 YEARS OLD.  30~40 세
L= BETWEEN 40 AND 50.  40~50 세
F= BETWEEN 50 AND 70.  50~70 세
N= OVER 70.            70 세 이상
I= UNDER 30.           30  미만
CHOOSE ONE OF THE LETTERS ABOVE? I

YOU ARE EXPECTED TO LIVE TO THE AGE OF 76 YEARS 당신은 76 세까지 살
OUT LIVING 61% OF THE MEN AND 39% OF THE WOMEN.        수 있읍니다.
Ok
```



```
10 PRINT TAB( 21);"LIFE EXPECTANCY"
20 PRINT TAB( 20);"CREATIVE COMPUTING"
30 PRINT TAB( 18);"MORRISTOWN, NEW JERSEY"
40 PRINT:PRINT:PRINT
270 PRINT:PRINT:PRINT
280 PRINT "THIS IS A LIFE EXPECTANCY TEST."
290 PRINT "   DO YOU WISH INSTRUCTIONS";
300 INPUT I$
310 IF LEFT$(I$,1)="N" THEN 470
320 PRINT:PRINT
330 PRINT "   THIS IS A TEST TO PREDICT YOUR LIFE EXPECTANCY.  I"
340 PRINT "WILL ASK YOU A SERIES OF SHORT QUESTIONS, WHICH YOU WILL"
350 PRINT "REPLY BY TYPING IN THE CORRESPONDING ANSWER TO THE"
360 PRINT "QUESTION."
370 PRINT
380 PRINT
390 PRINT "          EXAMPLE: WHAT IS YOUR SEX?"
400 PRINT "                M=MALE"
410 PRINT "                F=FEMALE"
420 PRINT "'M' AND 'F' ARE THE POSSIBLE REPLIES TO THE QUESTION, ANSWER"
430 PRINT "LIKE THIS:"
440 PRINT "                CHOOSE ONE OF THE LETTERS ABOVE? M"
450 PRINT "TYPING AN 'M' SIGNIFIES THAT YOU ARE A MALE."
460 PRINT:PRINT
470 R5=1:PRINT
480 Z=72
490 A$="ABCDEMGHIJKLFNO"
500 GOTO 1700
510 R5=R5+1
520 IF R5>21 THEN 1900
530 DATA "+++SEX+++"
540 DATA "ARE YOU MALE OR FEMALE?"
550 DATA "M = MALE."
560 DATA " F = FEMALE."
570 DATA 2,"MF"
580 DATA "+++LIFE STYLE+++"
590 DATA "WHERE DO YOU LIVE?"
600 DATA "G = IF YOU LIVE IN AN URBAN AREA WITH A POPULATION OVER 2 MIL."
610 DATA "K = IF YOU LIVE IN A TOWN UNDER 10,000 OR ON A FARM."
620 DATA " I = NEITHER"
630 DATA 3,"GKI"
640 DATA "HOW DO YOU WORK?"
650 DATA "M = IF YOU WORK BEHIND A DESK."
660 DATA "L = IF YOUR WORK REQUIRES HEAVY PHYSICAL LABOR"
670 DATA " I = NONE OF THE ABOVE."
680 DATA 3,"MLI"
690 DATA "HOW LONG DO YOU EXERCISE STRENUOUSLY,"
700 DATA "(TENNIS,RUNNING,SWIMMING,ETC.)?"
710 DATA "F = FIVE TIMES A WEEK FOR AT LEAST A HALF HOUR."
720 DATA "K = JUST TWO OR THREE TIMES A WEEK."
730 DATA " I = DO NOT EXERCISE IN THIS FASHION."
740 DATA 3,"FKI"
750 DATA "WHO DO YOU LIVE WITH?"
760 DATA "N = IF YOU LIVE WITH A SPOUSE, FRIEND, OR IN A FAMILY."
770 DATA "H = IF YOU'VE LIVED ALONE FOR 1-10 YEARS SINCE AGE 25."
780 DATA "G = FOR 11-20 YEARS."
790 DATA "M = FOR 21-30 YEARS."
800 DATA "E = FOR 31-40 YEARS."
810 DATA " D = MORE THAN 40 YEARS."
820 DATA 6,"NHGMED"
830 DATA "+++PSYCHE+++"
840 DATA "DO YOU SLEEP MORE THAN 10 HOURS A NIGHT?"
850 DATA "I = NO."
860 DATA " E = YES."
870 DATA 2,"IE"
880 DATA "+++MENTAL STATE+++"
890 DATA "M = IF YOU ARE INTENSE, AGGRESSIVE, OR EASILY ANGERED."
900 DATA "L = IF YOU ARE EASY GOING, RELAXED, OR A FOLLOWER."
910 DATA " I = NEITHER"
920 DATA 3,"MLI"
930 DATA "+++HOW YOU FEEL+++"
940 DATA "ARE YOU HAPPY OR UNHAPPY?"
950 DATA "J = HAPPY."
960 DATA "G = UNHAPPY."
970 DATA " I = NEITHER"
980 DATA 3,"JGI"
990 DATA "+++FACTORS+++"
1000 DATA "HAVE YOU HAD A SPEEDING TICKET IN THE LAST YEAR?"
1010 DATA "H = YES."
1020 DATA " I = NO."
1030 DATA 2,"HI"
1040 DATA "+++INCOME+++"
1050 DATA "DO YOU EARN MORE THAN $50,000 A YEAR?"
1060 DATA "G = YES."
1070 DATA " I = NO."
1080 DATA 2,"GI"
1090 DATA "+++SCHOOLING+++"
1100 DATA "J = IF YOU HAVE FINISHED COLLEGE."
1110 DATA "L = IF YOU HAVE FINISHED COLLEGE WITH A GRADUATE"
1120 DATA "OR PROFESSIONAL DEGREE."
1130 DATA " I = NOTHING LISTED."
1140 DATA 3,"JLI"
1150 DATA "+++AGE+++"
1160 DATA "ARE YOU 65 OR OLDER AND STILL WORKING?"
1170 DATA "L = YES."
1180 DATA " I = NO"
1190 DATA 2,"LI"
1200 DATA "+++HEREDITY+++"
1210 DATA "K = IF ANY GRANDPARENTS LIVED TO 85 YEARS OLD."
1220 DATA "O = IF ALL FOUR GRANDPARENTS LIVED TO BE 80 YEARS OLD."
1230 DATA " I = NO GRANDPARENTS QUALIFY IN THE ABOVE."
1240 DATA 3,"KOI"
1250 DATA "HAS ANY PARENT DIED OF A STROKE OR HEART ATTACK"
1260 DATA "BEFORE THE AGE OF 50?"
1270 DATA "E = YES."
1280 DATA " I = NO."
1290 DATA 2,"EI"
1300 DATA "+++FAMILY DISEASES+++"
1310 DATA "ANY PARENT, BROTHER, OR SISTER UNDER 50 HAS (OR HAD)"
1320 DATA "CANCER, A HEART CONDITION, OR DIABETES SINCE CHILDHOOD?"
1330 DATA "M = YES"
1340 DATA " I = NO"
1350 DATA 2,"MI"
1360 DATA "+++HEALTH+++"
1365 DATA "HOW MUCH DO YOU SMOKE?"
1370 DATA "A = IF YOU SMOKE MORE THAN TWO PACKS A DAY."
1380 DATA "C = ONE TO TWO PACKS A DAY."
1390 DATA "M = ONE HALF TO ONE PACK A DAY."
1400 DATA " I = DON'T SMOKE."
1410 DATA 4,"ACMI"
1420 DATA "+++DRINKING+++"
1430 DATA "DO YOU DRINK THE EQUIVALENT OF A"
1440 DATA "QUARTER BOTTLE OF ALCOHOLIC BEVERAGE A DAY?"
1450 DATA "H = YES"
1460 DATA " I = NO"
1470 DATA 2,"HI"
1480 DATA "+++WEIGHT+++"
1490 DATA "A = IF YOU ARE OVERWEIGHT BY 50 POUNDS OR MORE."
1500 DATA "E = OVER BY 30-50 POUNDS."
1510 DATA "G = OVER BY 10-30 POUNDS."
1520 DATA " I = NOT OVERWEIGHT."
1530 DATA 4,"AEGI"
1540 DATA "+++CHECKUPS+++"
1550 DATA "IF YOU ARE A MALE OVER 40 DO YOU HAVE AN ANNUAL CHECKUP?"
1560 DATA "K = YES."
1570 DATA " I = NO, OR NOT A MALE OVER 40 YEARS OLD."
1580 DATA 2,"KI"
1590 DATA "IF YOU ARE A WOMAN DO YOU SEE A GYNECOLOGIST ONCE A YEAR?"
1600 DATA "K = YES."
1610 DATA " I = NO, OR NOT A WOMAN."
1620 DATA 2,"KI"
1630 DATA "+++CURRENT AGE+++"
1640 DATA "K = IF YOU ARE BETWEEN 30 AND 40 YEARS OLD."
1650 DATA "L = BETWEEN 40 AND 50."
1660 DATA "F = BETWEEN 50 AND 70."
1670 DATA "N = OVER 70."
1680 DATA " I = UNDER 30."
1690 DATA 5,"KLFNI"
1700 FOR Q=1 TO 7
1710 READ Q$
1720 IF LEFT$(Q$,1)=" " THEN 1750
1730 PRINT "  ";Q$
1740 NEXT Q
1750 PRINT " ";Q$
1760 READ C,C$
1770 PRINT "CHOOSE ONE OF THE LETTERS ABOVE";
1780 INPUT G$
1790 FOR C2=1 TO C
1800 IF LEFT$(G$,1)=MID$(C$,C2,1) THEN 1830
1810 NEXT C2
1820 GOTO 1770
1830 PRINT
1840 FOR N=1 TO 15
1850 IF LEFT$(G$,1)=MID$(A$,N,1) THEN 1870
1860 NEXT N
1870 M=N-9
1880 Z=Z+M
1890 GOTO 510
1900 PRINT "YOU ARE EXPECTED TO LIVE TO THE AGE OF";Z;"YEARS."
1910 IF Z<60 THEN 1980
1920 FOR Y=60 TO Z STEP 5
1930 READ M$,F$
1940 NEXT Y
1950 DATA "26%","15%","36%","20%","48%","30%","61%","39%"
1960 DATA "75%","53%","87%","70%","96%","88%","99.9%","99.6%"
1970 PRINT "OUTLIVING ";M$;" OF THE MEN AND ";F$;" OF THE WOMEN."
1980 INPUT "WOULD YOU LIKE ANOTHER ESTIMATE";RESP$
1990 IF LEFT$(RESP$,1)="Y" THEN RESTORE:GOTO 270 ELSE END
```

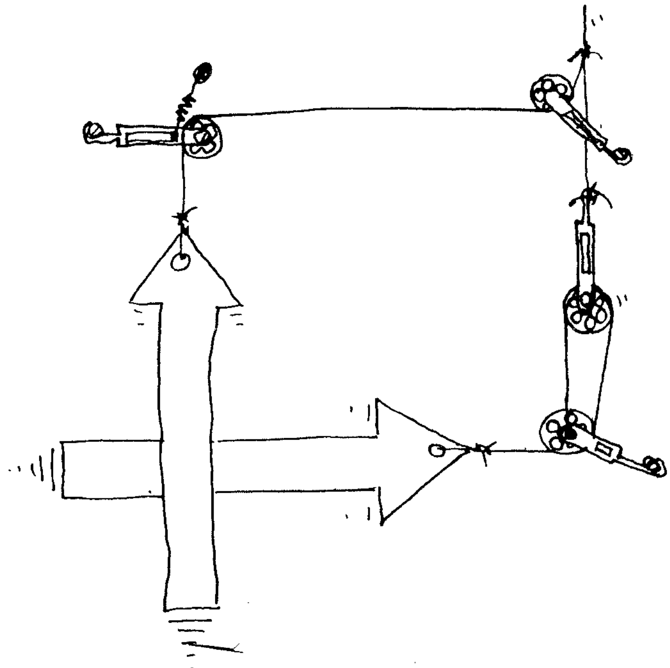
Lissajous (리사쥬 모양)

리사쥬 모양을 그리는 프로그램이다. X, Y축 방향의 주기와 Y의 위상(位相)을 입력한다. X, Y의 값을 1 이상의 양수, 위상은 0 이든 어떤 값이든 상관없다.

주기와 위상을 바꾸어 나가면, 재미있는 모양이 생긴다. 별 모양의 것, 복잡한 모양이 겹쳐진 듯한 것을 비롯하여 놀랄만큼 아름다운 모양도 생성된다.

주기가 9, 10을 넘으면, 보통의 프린터 출력에서는 자세한 부분이 나오지 않는 경우가 있다.

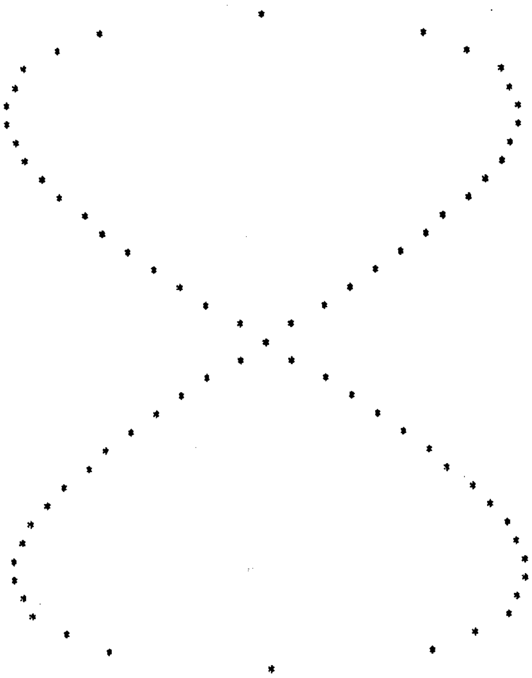
This program was originally written by Larry Ruane and modified by several other people along the line. It appeared first in *Creative Computing*, Sep/Oct 1977.



```
RUN
                    LISSAJOUS
                CREATIVE COMPUTING
              MORRISTOWN  NEW JERSEY

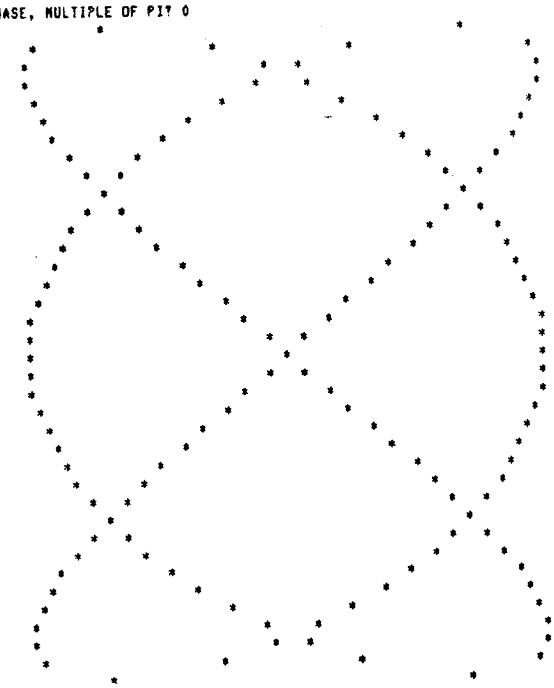

RELATIVE FREQ. FOR X? 3
RELATIVE FREQ. FOR Y? 6
Y PHASE, MULTIPLE OF PI? 0
```

X의 주기는?
Y의 주기는?
위상은?



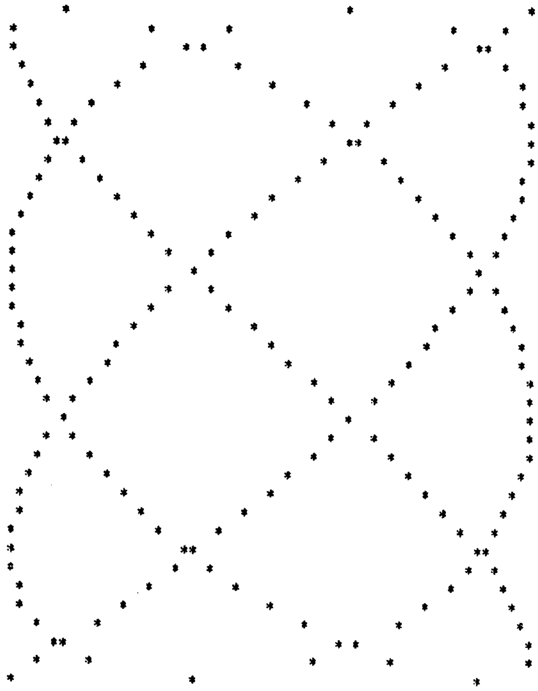
```
                    LISSAJOUS
                CREATIVE COMPUTING
              MORRISTOWN  NEW JERSEY


RELATIVE FREQ. FOR X? 2
RELATIVE FREQ. FOR Y? 3
Y PHASE, MULTIPLE OF PI? 0
```

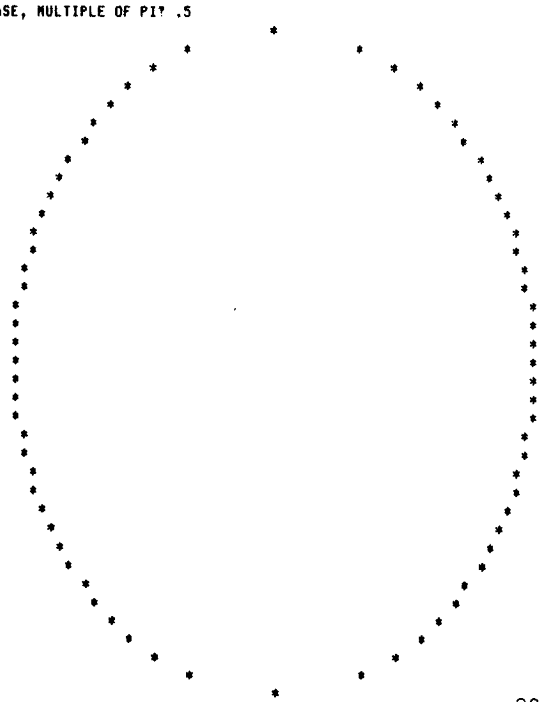


```
RUN
                      LISSAJOUS
                 CREATIVE COMPUTING
               MORRISTOWN  NEW JERSEY


RELATIVE FREQ. FOR X? 5
RELATIVE FREQ. FOR Y? 7
Y PHASE, MULTIPLE OF PI? 0
```



```
RELATIVE FREQ. FOR X? 1
RELATIVE FREQ. FOR Y? 1
Y PHASE, MULTIPLE OF PI? .5
```



```
10 PRINT CHR$(26);TAB( 22);"LISSAJOUS"
20 PRINT TAB( 18);"CREATIVE COMPUTING"
30 PRINT TAB( 16);"MORRISTOWN  NEW JERSEY"
40 PRINT:PRINT:PRINT
50 DIM Y(10)
100 REM   STEP-WISE LISSAJOUS
110 P=3.1415926#
120 PRINT "RELATIVE FREQUENCY FOR X";:INPUT F1:IF INT(F1) < F1 THEN 120
122 IF F1 < 1 THEN 120
125 F=F1:F1=2*P*F1
130 PRINT "RELATIVE FREQUENCY FOR Y";:INPUT F2:IF INT(F2) < F2 THEN 130
132 IF F2 < 1 THEN 130
135 PRINT "Y PHASE, MULTIPLE OF PI";:INPUT P2:P2=P*P2
136 PRINT:LINE INPUT "MAKE SURE PRINTER IS ON. HIT 'RETURN' WHEN READY. ";XX$
140 F2=2*P*F2
150 FOR X1=-18 TO 18
160 X=X1/18:GOSUB 1970:T1=X:T2=P-X
162 FOR I=0 TO F-1
165 T3=(T1+2*I*P)/F1:T4=(T2+2*I*P)/F1
170 Y1=30*SIN(F2*T3+P2):Y2=30*SIN(F2*T4+P2)
180 Y1=SGN(Y1)*INT(ABS(Y1)+.5):Y2=SGN(Y2)*INT(ABS(Y2)+.5)
190 Y(2*I)=Y1:Y(2*I+1)=Y2
200 NEXT I
210 FOR J=1 TO 2*F-1:I=J-1:T=Y(J)
220 IF T >= Y(I) THEN 240
230 Y(I+1)=Y(I):I=I-1:IF I >=0 THEN 220
240 Y(I+1)=T:NEXT J
250 FOR I=0 TO 2*F-1
260 IF I=0 THEN 280
270 IF Y(I)=Y(I-1) THEN 290
280 PRINT TAB( 36+Y(I));"*";
290 NEXT I
300 PRINT
310 NEXT X1
1890 STOP
1960 REM:-----------------------------------
1970 IF ABS(X) < .1 THEN 2020
1980 X=X/(SQR(1+X)+SQR(1-X))
1990 GOSUB 1970
2000 X=2*X
2010 RETURN
2020 X=X+X^3/6+.075*X^5+X^7/22.4
2030 RETURN
2040 END
```

Magic Square (마방진)

마방진(魔方陣 —— 자연수를 방형으로 배열하여, 가로나 세로나 대각으로 합한 수가 똑같게 되는 것)에는 여러 가지가 있는데, 3×3의 네모 안에 1～9의 숫자를 넣어, 가로, 세로, 대각의 어느 방향으로나 합계가 15가 되는 패턴(pattern)이 가장 일반적이다.

이 게임에서는, 당신과 컴퓨터가 9개의 네모 안에 1부터 9까지의 숫자를 번갈아 넣어 간다. 넣어 가는 중에 가로, 세로, 대각 어느 쪽으로든 세 수의 합이 15가 아닌 수를 넣는 쪽이 지는 것이다. 9개를 다 채울 때까지 모두 15가 되는 수를 넣으면 게임은 비긴다.

애당초 3×3의 마방진에는 풀이가 한 가지밖에 없다. 다만, 그것을 회전하여 8가지로 풀이되는 것이다. 그러나, 이 컴퓨터는 창조력이 부족하므로, 그 중에서 몇 가지밖에 사용할 수 없다.

8가지의 풀이를 모두 사용할 수 있도록 프로그램을 개량해 보라(400행, 410행에서 네모와 숫자를 임의로 선택할 수 있게 한다).

This program was created by David Ahl and originally appeared in *Creative Computing*, Jan/Feb 1975.

```
RUN
                          MAGIC SQUARE
           CREATIVE COMPUTING  MORRISTOWN NEW JERSEY

GAME OF MAGIC SQUARE

PLAYERS ALTERNATLEY CHOOSE AN INTEGER (1 TO 9)
THAT HAS NOT BEEN PREVIOUSLY USED AND PLACE IT
IN ANY UNFILLED CELL OF A TIC-TAC-TOE BOARD.
THE GOAL IS TO MAKE THE SUM OF EACH ROW, COLUMN,
AND DIAGONAL EQUAL TO 15.

THAT PLAYER LOSES WHO FIRST MAKES THE SUM OF THE    세 수의 합계가, 가로, 세로,
THREE FIGURES IN ANY ROW, COLUMN, OR DIAGONAL       대각 어느 쪽으로든 15가
SOMETHING OTHER THAN 15.                            안 되면 집니다.

A TIE GAME DRAWS A MAGIC SQUARE!!  마방진이 되면 비깁니다.

THE COMPUTER WILL ASK YOU ON EACH MOVE WHICH
CELL YOU WISH TO OCCUPY, AND THE NUMBER YOU WISH
LIKE '3,7' IF YOU WISHED TO PUT A 7 IN CELL 3.  '넣을 곳, 숫자'의 형식으로 입력
                                                 하시오.
HERE ARE THE CELL NUMBERS:  이러한 번호가 붙어 있읍니다.

1 2 3
4 5 6
7 8 9

INPUT YOUR MOVE --- CELL AND NUMBER? 1,1  어디에 몇을 넣겠읍니까?

 1          0          0
 0          0          0
 0          0          0

I MOVE TO CELL  2  WITH A  2    컴퓨터는 2에 2를 넣습니다.

 1          2          0
 0          0          0
 0          0          0


INPUT YOUR MOVE --- CELL AND NUMBER? 5,9

 1          2          0
 0          9          0
 0          0          0

I MOVE TO CELL  4  WITH A  3

 1          2          0
 3          9          0
 0          0          0


INPUT YOUR MOVE --- CELL AND NUMBER? 3,5

 1          2          5
 3          9          0
 0          0          0

SORRY, YOU LOSE -- NICE TRY.   애석합니다. 그러나 잘했읍니다.
```

```
LET'S PLAY AGAIN. . .

INPUT YOUR MOVE --- CELL AND NUMBER? 1,1

 1              0              0
 0              0              0
 0              0              0

I MOVE TO CELL  2  WITH A  2

 1              2              0
 0              0              0
 0              0              0


INPUT YOUR MOVE --- CELL AND NUMBER? 9,9

 1              2              0
 0              0              0
 0              0              9

I MOVE TO CELL  4  WITH A  3

 1              2              0
 3              0              0
 0              0              9

INPUT YOUR MOVE --- CELL AND NUMBER? 6,5

 1              2              0
 3              0              5
 0              0              9

I MOVE TO CELL  8  WITH A  4

 1              2              0
 3              0              5
 0              4              9


INPUT YOUR MOVE --- CELL AND NUMBER? 5,7

 1              2              0
 3              7              5
 0              4              9

SORRY, YOU LOSE -- NICE TRY.
```

```
5 PRINT TAB( 28);"MAGIC SQUARE"
10 PRINT TAB( 15);"CREATIVE COMPUTING  MORRISTOWN NEW JERSEY":PRINT
12 DIM A(9),B(9)
25 PRINT "PLAYERS ALTERNATLEY CHOOSE AN INTEGER (1 TO 9)"
30 PRINT "THAT HAS NOT BEEN PREVIOUSLY USED AND PLACE IT"
35 PRINT "IN ANY UNFILLED CELL OF A TIC-TAC-TOE BOARD."
40 PRINT "THE GOAL IS TO MAKE THE SUM OF EACH ROW, COLUMN,"
45 PRINT "AND DIAGONAL EQUAL TO 15."
47 PRINT
50 PRINT "THAT PLAYER LOSES WHO FIRST MAKES THE SUM OF THE"
55 PRINT "THREE FIGURES IN ANY ROW, COLUMN, OR DIAGONAL"
60 PRINT "SOMETHING OTHER THAN 15."
62 PRINT
65 PRINT "A TIE GAME DRAWS A MAGIC SQUARE!!"
67 PRINT
70 PRINT "THE COMPUTER WILL ASK YOU ON EACH MOVE WHICH"
75 PRINT "CELL YOU WISH TO OCCUPY, AND THE NUMBER YOU WISH"
80 PRINT "LIKE '3,7' IF YOU WISHED TO PUT A 7 IN CELL 3."
85 PRINT
90 PRINT "HERE ARE THE CELL NUMBERS:"
92 PRINT
93 PRINT "1 2 3"
94 PRINT "4 5 6"
95 PRINT "7 8 9"
96 FOR I = 1 TO 9
97 A(I)=0
98 B(I)=0
99 NEXT I
100 M=0:W=0
103 PRINT
104 PRINT "INPUT YOUR MOVE --- CELL AND NUMBER";
105 INPUT I,N
110 IF I<1  OR I > 9 OR N < 1 OR N > 9 THEN 130
120 IF A(I)=0 AND B(N)=0 THEN 150
130 PRINT "ILLEGAL MOVE ....AGAIN"
135 GOTO 103
150 A(I)=N:B(N)=1:M=M+1
170 GOSUB 960
180 GOSUB 800
200 IF W=0 THEN 230
210 PRINT "SORRY, YOU LOSE -- NICE TRY."
211 GOTO 560
230 IF M < 5 THEN 400
240 PRINT "A TIE GAME -- BUT WE'VE DRAWN A MAGIC SQUARE!"
250 GOTO 560
400 FOR Q=1 TO 9
410 IF A(Q)> 0 THEN 480
420 FOR R=1 TO 9
430 IF B(R)>0 THEN 470
435 A(Q)=R
440 GOSUB 800
450 IF W=0 THEN 500
460 Q1=Q:R1=R:W=0:A(Q)=0
470 NEXT R
480 NEXT Q
490 W=1:R=R1:Q=Q1:A(Q)=R
500 B(R)=1
520 PRINT "I MOVE TO CELL";Q;"WITH A";R
530 GOSUB 960
540 IF W=0 THEN 103
550 PRINT "I LOSE --- YOU WIN!!"
560 PRINT
561 FOR I=1 TO 15
562 PRINT CHR$(7);
564 NEXT I
570 INPUT "PLAY AGAIN";ANS$
572 IF LEFT$(ANS$,1)="Y" THEN 96 ELSE END
800 FOR X=1 TO 8
810 ON X GOTO 820,830,840,850,860,870,880,890
820 J=1:K=2:L=3:GOTO 900
830 K=4:L=7:GOTO 900
840 K=5:L=9:GOTO 900
850 J=4:L=6:GOTO 900
860 J=2:L=8:GOTO 900
870 J=3:L=7:GOTO 900
880 J=7:L=9:GOTO 900
890 J=7:K=8
900 IF A(J)=0 OR A(K)=0 OR A(L)=0 THEN 930
920 IF A(J)+A(K)+A(L) <> 15 THEN 940
930 NEXT X
935 GOTO 950
940 W=1
950 RETURN
960 PRINT
965 PRINT A(1),A(2),A(3)
970 PRINT A(4),A(5),A(6)
975 PRINT A(7),A(8),A(9)
980 PRINT
990 RETURN
999 END
```

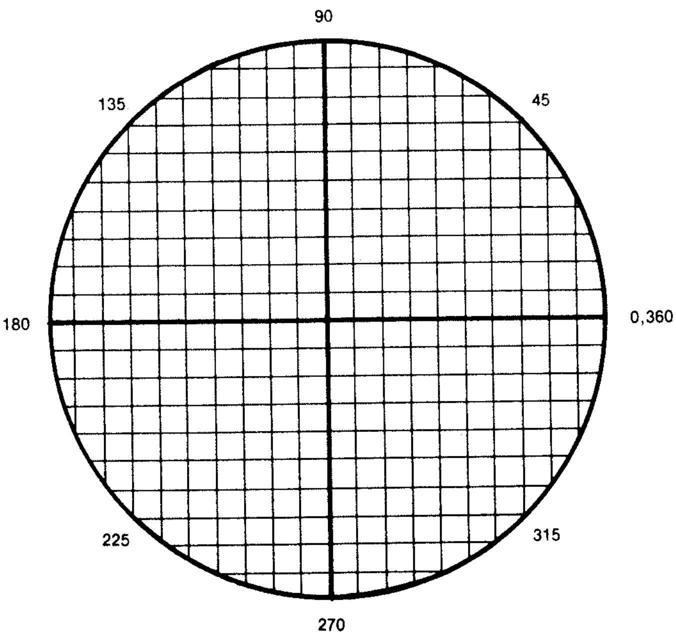
Man-Eating Rabbit
(식인 토끼)

This program was conceived and written by Philip Stanway.

당신은 식인 토끼가 있는 투토장(鬪兎場)에 떨어졌다. 여기는 좌표(0, 0)를 중심으로 하는 반지름이 10인 원형 콜러시엄(colosseum)이다. 당신은 한 번에 8 방향(0°, 45°, 90°, 135°, ……)의 어느 쪽으로든 한 발짝밖에 움직일 수 없지만, 토끼는 한 번의 이동으로 몇 번이나 점프(Jump)할 수 있다. 토끼가 10번 이동하는 동안 잡히지 않으면, 당신의 승리로 자유를 획득할 수 있다.

도대체 어느 별의 주민이 이와 같이 비인도적인 스포츠를 하는지 알 수 없지만, 글쎄, 당신이 자유를 획득할 확률은 10% 이하가 아닐까? 핸디캡이 필요하다면, 토끼의 점프를 한 번이나 두 번으로 제한하면 될 것이다.

아래와 같은 그림을 이용하여 이동한 자취를 더듬으면 좀더 재미있지 않을까 하는 생각이다. 이렇게 게임하려면, 각 방향으로 최저 21눈의 모눈종이를 준비한다. 다음에 콤파스로 지름 20눈의 원을 그리고 −10에서 +10까지 X축과 Y축에 각각 번호를 붙인다. 당신이 이동한 자취대로 그림을 그리면, 재미있는 도안이 완성될지도 모른다.




```
                MAN-EATING RABBIT
               CREATIVE COMPUTING
             MORRISTOWN, NEW JERSEY


YOU ARE IN A PIT WITH A MAN-EATING RABBIT.
THE CENTER IS (0,0) AND IT HAS A RADIUS OF 10
IF YOU CAN AVOID THE RABBIT FOR 10 MOVES YOU WILL BE
RELEASED.  YOU AND THE RABBIT CAN MOVE ONLY 1 SPACE EACH
HOWEVER THE RABBIT CAN DO MULTIPLE JUMPS.
YOU CAN TRAVEL AT THESE ANGLES   이 방향으로 이동할 수 있읍니다.
0,45,90,135,180,225,270,315,360 ···


WHERE WOULD YOU LIKE TO BE DROPPED? 2,3   어느 지점에 낙하하겠읍니까?
RABBIT AT ( 2 , 7 ) AND DISTANCE  4   토끼는 (2,7)에 있으며, 거리는
                                       4입니다.

TURN # 1   HUMAN AT ( 2 , 3 )
AT WHAT ANGLE WILL YOU RUN ? 270   어느 방향으로 피하겠읍니까?
RUNNING ......HUMAN YOU ARE NOW AT ( 2 , 2 )
THE RABBIT IS POUNCING AT ANGLE..... 270
THE RABBIT IS POUNCING AT ANGLE..... 270
RABBIT AT ( 2 , 5 ) AND DISTANCE  3

TURN # 2   HUMAN AT ( 2 , 2 )
AT WHAT ANGLE WILL YOU RUN ? 225
RUNNING ......HUMAN YOU ARE NOW AT ( 1 , 1 )
THE RABBIT IS POUNCING AT ANGLE..... 270
THE RABBIT IS POUNCING AT ANGLE..... 270
RABBIT AT ( 2 , 3 ) AND DISTANCE  2.23607

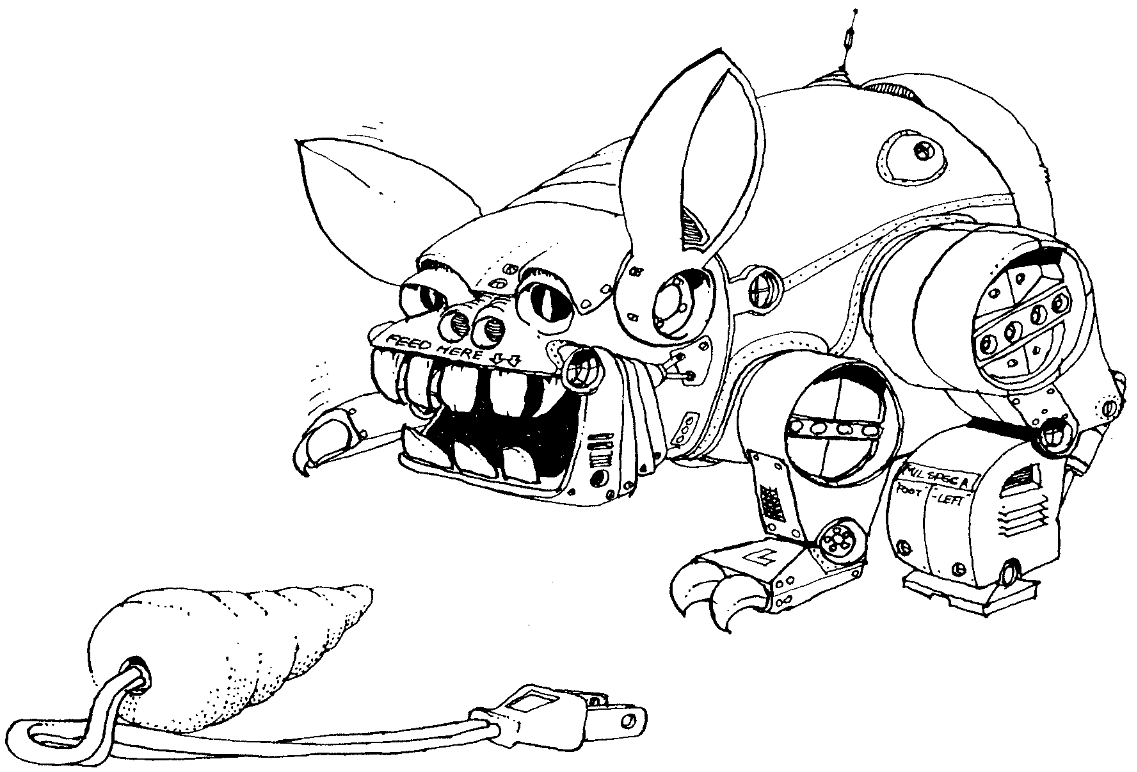
TURN # 3   HUMAN AT ( 1 , 1 )
AT WHAT ANGLE WILL YOU RUN ? 225
RUNNING ......HUMAN YOU ARE NOW AT ( 0 , 0 )
THE RABBIT IS POUNCING AT ANGLE..... 225
RABBIT AT ( 1 , 2 ) AND DISTANCE  2.23607

TURN # 4   HUMAN AT ( 0 , 0 )
AT WHAT ANGLE WILL YOU RUN ? 225
RUNNING ......HUMAN YOU ARE NOW AT (-1 ,-1 )
THE RABBIT IS POUNCING AT ANGLE..... 225
RABBIT AT ( 0 , 1 ) AND DISTANCE  2.23607

TURN # 5   HUMAN AT (-1 ,-1 )
AT WHAT ANGLE WILL YOU RUN ? 270
RUNNING ......HUMAN YOU ARE NOW AT (-1 ,-2 )
THE RABBIT IS POUNCING AT ANGLE..... 270
RABBIT AT ( 0 , 0 ) AND DISTANCE  2.23607

TURN # 6   HUMAN AT (-1 ,-2 )
AT WHAT ANGLE WILL YOU RUN ? 225
RUNNING ......HUMAN YOU ARE NOW AT (-2 ,-3 )
THE RABBIT IS POUNCING AT ANGLE..... 225
THE RABBIT IS POUNCING AT ANGLE..... 225
THE RABBIT IS POUNCING AT ANGLE..... 270
RABBIT AT (-2 ,-3 ) AND DISTANCE  0
**CRUNCH** WELL R.I.P.   우두둑! 아멘.
Ok
```

```
1 PRINT CHR$(26);TAB( 20);"MAN-EATING RABBIT"
2 PRINT TAB( 20);"CREATIVE COMPUTING"
3 PRINT TAB( 10);"MORRISTOWN, NEW JERSEY"
4 PRINT:PRINT:PRINT
10 PRINT "YOU ARE IN A PIT WITH A MAN-EATING RABBIT."
15 PRINT "THE CENTER IS (0,0) AND IT HAS A RADIUS OF 10."
20 PRINT "IF YOU CAN AVOID THE RABBIT FOR 10 MOVES YOU WILL BE"
25 PRINT "RELEASED.  YOU AND THE RABBIT CAN MOVE ONLY 1 SPACE EACH."
26 PRINT "HOWEVER, THE RABBIT CAN DO MULTIPLE JUMPS.":PRINT
27 PRINT "YOU CAN TRAVEL AT THESE ANGLES:"
28 PRINT "0,45,90,135,180,225,270,315,360"
40 X=INT(21*RND(1)-10)
41 Y=INT(21*RND(1)-10)
45 D=SQR(ABS((X-X1)^2+(Y-Y1)^2))
46 IF D>10 THEN 40
47 PRINT
48 PRINT
50 PRINT "WHERE WOULD YOU LIKE TO BE DROPPED";
51 INPUT X1,Y1
60 IF SQR(ABS(X1^2+Y1^2))>10 THEN 50
65 IF X<>X1 THEN 70
66 IF Y<>Y1 THEN 70
67 PRINT "*****SQUISH*****"
69 PRINT "THE RABBIT IS DEAD!  YOU ARE SET FREE!":GOTO 340
70 FOR G=1 TO 10
71 D=SQR(ABS((X-X1)^2+(Y-Y1)^2))
80 PRINT "RABBIT AT (";X;",";Y;") AND DISTANCE";D
90 IF D=0 THEN 330
91 PRINT:PRINT "TURN #";G;"  HUMAN AT (";X1;",";Y1;")"
100 PRINT "AT WHAT ANGLE WILL YOU RUN ";
101 INPUT A
110 IF A/45<>INT(A/45) THEN 100
111 PRINT "RUNNING ......";:P1=1
112 M=1:IF ABS((INT(A/10)*10)-A)<>5 THEN 120
113 M=SQR(2)
120 X2=(M*COS(A*(3.14159/180)))
121 Y2=(M*SIN(A*(3.14159/180)))
125 IF SQR(((X1+X2)^2+(Y1+Y2)^2))<=10 THEN 130
126 PRINT "YOU CAN'T GO INTO A WALL!!"
127 GOTO 100
130 X1=INT(X1*1000)/1000+X2
131 Y1=INT(Y1*1000)/1000+Y2
132 X1=INT(X1+.5)
133 Y1=INT(Y1+.5)
135 PRINT "HUMAN, YOU ARE NOW AT (";X1;",";Y1;")"
136 IF X<>X1 THEN 140
137 IF Y<>Y1 THEN 140
138 PRINT "YOU RAN RIGHT INTO THE RABBIT!!"
139 GOTO 330
140 PRINT "THE RABBIT IS POUNCING AT ANGLE....";:P1=P1+1
150 X2=X1-X:Y2=Y1-Y
151 IF X2=0 THEN 280
152 IF Y2=0 THEN 300
160 B=INT(ATN(ABS((Y2/X2)))/(3.14159/180))
170 ON SGN(X2)+2 GOTO 190,10,180
180 ON SGN(Y2)+2 GOTO 240,10,250
190 ON SGN(Y2)+2 GOTO 230,10,220
220 B=180-B:GOTO 250
230 B=B+180:GOTO 180
240 B=360-B
250 B=INT(B/45+.5)*45:PRINT B
255 M=1
256 IF ABS((INT(B/10)*10)-B)<>5 THEN 260
257 M=1.5
260 X2=(M*COS(B*(3.14159/180)))
261 Y2=(M*SIN(B*(3.14159/180)))
270 X=INT(X+X2+.5)
271 Y=INT(Y+Y2+.5)
272 GOTO 315
280 IF Y2<0 THEN 290
281 B=90:GOTO 315
290 B=270:GOTO 250
300 IF X2<0 THEN 310
301 B=1:GOTO 250
310 B=180:GOTO 250
315 IF SQR((X-X1)^2+(Y-Y1)^2)=0 THEN 323
320 P=INT(P1*RND(X)+1)
321 IF P<>1 THEN 323
322 GOTO 140
323 NEXT G:PRINT:PRINT "YOU ARE RELEASED!":PRINT:GOTO 340
330 PRINT:PRINT "*** CRUNCH *** WELL, R.I.P.":PRINT
340 INPUT "TRY AGAIN";ANS$
350 IF LEFT$(ANS$,1)="Y" THEN 40 ELSE END
```



Maneuvers(기동 연습)

당신은 우주 항공 모함 엔터프라이즈의 파일럿. 당신은 지금 육면체로 된 우주 공간에서 기동 연습을 하고 있다. 육면체 우주의 한 변은 10parsec의 거리이며, 좌표축은 sample run에서 보인 것과 같다. 여기에서는, 당신은 육면체 우주의 꼭지점에 기지 A, B, C, D를 차례로 방문하여 메시지를 전해야 한다. A 기지에는 비교적 쉽게 갈 수 있지만, 그 밖의 기지에는 의외로 가기가 어렵다.

또 하나의 컴퓨터를 사용하여 궤도를 계산하면 문제는 금방 해결되겠지만, 이것은 좀 교활한 방법이 아닐까? 그리고, 궤도를 계산하는 프로그램을 작성하기가 좀 어려울 것이다.

이 게임은, 50회 이상 할 가치가 있다고 생각한다.

This program was written by John C. Russ.

```
RUN
                         MANUEVERS
                     CREATIVE COMPUTING
                   MORRISTOWN, NEW JERSEY


DO YOU NEED INSTRUCTIONS? YES    설명이 필요합니까?

YOU ARE THE PILOT OF THE ENTERPRISE'S SPACE SHUTTLE.  당신은 우주 항공 모함
YOU MUST DELIVER A MESSAGE TO EACH OF FOUR STARBASES, 엔터프라이즈의 파일럿
IN THE LEAST TOTAL TIME.  YOUR INITIAL POSITION IS AT                 입니다.
ONE CORNER OF A CUBE, TEN PARSECS ON A SIDE.  THE BASES
ARE AT THE CORNERS SHOWN BELOW, MARKED A, B, C, AND D IN
THE ORDER IN WHICH YOU MUST VISIT THEM.  A, B, C, D순으로 돌아야 합니다.
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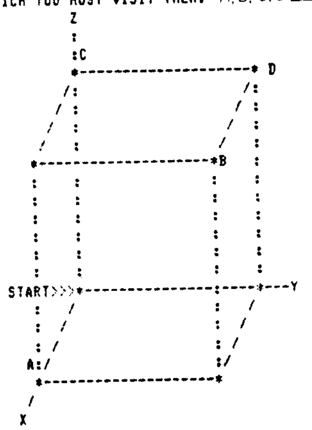



```
기지로부터 1parsec 이내의 공간을 통과해야 합니다. 우주선은 1우주일
당 0.2parsec씩 가속됩니다. 1우주일에 1회, 우주선의 현재 위치가 표
시되므로 그 때 당신은 우주선의 궤도를 수정하면 됩니다. 먼저, X축에 대
한 각도, X-Y 평면에 대한 각도를 입력합니다.
FOR YOUR SUBSPACE RADIO TO DELIVER THE MESSAGE, YOU
MUST PASS WITHIN ONE PARSEC OF EACH STARBASE.  YOUR
PROPULSION SYSTEM IS ALWAYS ON, GIVING YOU A CONSTANT
ACCELERATION OF 0.2 PARSECS PER STARDATE PER STARDATE.
YOU CAN ONLY CONTROL THE ORIENTATION OF YOUR SHIP, TO
DIRECT YOUR THRUST AND ACCELERATION.  YOU SPECIFY YOUR
SHIP'S ATTITUDE BY THE ANGLE THETA (THE CLOCKWISE ANGLE
IN THE X-Y PLANE STARTING AT THE X-AXIS) AND THE ANGLE
PSI (THE ANGLE OF INCLINATION ABOVE THE X-Y PLANE).
YOU INPUT NEW ANGLES EACH STARDATE.
경과 시간        위치                            방위
ELAPSED  POSITION COORDINATES:             ORIENTATION
TIME     X          Y          Z           THETA  ,  PSI
 0       0          0          0           ? 0,0
 1       .1         0          0           ? 0,0
 2       .4         0          0           ? 0,0
 3       .9         0          0           ? 0,0
 4       1.6        0          0           ? 0,0
 5       2.5        0          0           ? 0,0
 6       3.6        0          0           ? 0,0
 7       4.9        0          0           ? 180,0
 8       6.2        0          0           ? 180,0
 9       7.3        0          0           ? 180,0
 10      8.2        0          0           ? 180,0
 11      8.9        0          0           ? 180,0
 12      9.4        0          0
MESSAGE DELIVERED TO BASE # 1  제1기지에 메시지를 보냅니다.
AT TIME 12.28                              ? 180,0
 13      9.7        0          0           ? 180,0
 14      9.8        0          0           ? 90,90
 15      9.8        0          .1          ? 90,90
 16      9.8        0          .4          ? 0,90
 17      9.8        0          .9          ? 90,45
 18      9.8        .071       1.571       ? 90,0
 19      9.8        .312       2.312       ? 90,0
 20      9.8        .754       3.054       ? 90,270
 21      9.8        1.295      3.695       ? 90,270
 22      9.8        1.836      4.136       ? 90,270
 23      9.8        2.378      4.378       ? 90,0
 24      9.8        3.019      4.519       ? 90,0
 25      9.8        3.861      4.661       ? 90,0
 26      9.8        4.902      4.802       ? 270,0
 27      9.8        5.944      4.944       ? 270,0
 28      9.8        6.785      5.085       ? 270,0
 29      9.8        7.426      5.226       ? 270,0
 30      9.8        7.868      5.368       ? 270,0
 31      9.8        8.109      5.509       ? 270,0
 32      9.8        8.151      5.651       ? 90,90
 33      9.8        8.092      5.892       ? 90,90
 34      9.8        8.034      6.333       ? 90,270
 35      9.8        7.975      6.775       ? 90,270
 36      9.8        7.916      7.016       ? 90,270
 37      9.8        7.858      7.058       ? 90,.\.\90
 38      9.8        7.799      7.099       ? 90,90
 39      9.8        7.741      7.341       ? 90,90
 40      9.8        7.682      7.782       ? 90,90
 41      9.8        7.623      8.423       ? 90,270
 42      9.8        7.565      9.065       ? 90,270
 43      9.8        7.506      9.506       ? 90,270
 44      9.8        7.448      9.748       ? 90,270
 45      9.8        7.389      9.789       ? 90,0
 46      9.8        7.431      9.731       ? 90,90
 47      9.8        7.572      9.772       ? 90,270
 48      9.8        7.713      9.813       ? 90,270
 49      9.8        7.855      9.655       ? 90,0
 50      9.8        8.096      9.396       ? 90,90
 51      9.8        8.438      9.238       ? 90,0
 52      9.8        8.879      9.179       ? 90,90
 53      9.8        9.421      9.22
MESSAGE DELIVERED TO BASE # 2
AT TIME 53.74                              ? 90,270
 54      9.8        9.962      9.262       ? 90,0
 55      9.8        10.603     9.203       ? 225,0
 56      9.729      11.274     9.145       ? 45,0
```

```
 57      9.659     11.945    9.086    ? 270,0
 58      9.659     12.586    9.028    ? 270,0
 59      9.659     13.028    8.969    ? 270,90
 60      9.659     13.369    9.01     ? 270,90
 61      9.659     13.71     9.252    ? 270,270
 62      9.659     14.052    9.493    ? 270,270
 63      9.659     14.393    9.535    ? 270,270
 64      9.658     14.735    9.376    ? 270,90
 65      9.658     15.076    9.218    ? 270,0
 66      9.658     15.318    9.159    ? 276,0
 67      9.669     15.36     9.1      ? 270,0
 68      9.69      15.202    9.042    ? 245,0
 69      9.668     14.854    8.983    ? 250,0
 70      9.571     14.321    8.925    ? 270,0
 71      9.439     13.595    8.866    ? 245,0
 72      9.264     12.677    8.807    ? 260,0
 73      9.03      11.571    8.749    ? 257,0
 74      8.757     10.268    8.69     ? 245,90
 75      8.46      8.869     8.732    ? 230,0
 76      8.1       7.392     8.873    ? 200,0
 77      7.581     5.805     9.015    ? 150,0
 78      6.882     4.234     9.156    ? 90,0
 79      6.096     2.812     9.297    ? 90,0
 80      5.31      1.591     9.439    ? 90,0
 81      4.524     .569      9.58     ? 90,0
 82      3.738     -.252     9.722    ? 90.0,0
 83      2.952     -.873     9.863    ? 45,0
 84      2.236     -1.324    10.005   ? 45,0
 85      1.663     -1.633    10.146   ? 45,0
 86      1.23      -1.801    10.287   ? 45,0
 87      .939      -1.827    10.429   ? 45,0
 88      .79       -1.712    10.57    ? 45,0
 89      .781      -1.456    10.712   ? 45,0
 90      .915      -1.058    10.853   ? 45,0
 91      1.189     -.519     10.994   ? 200,270
 92      1.535     .091      11.036   ? 180,270
 93      1.88      .701      10.877   ? 180,0
 94      2.126     1.311     10.619   ? 180,0
 95      2.171     1.921     10.36    ? 225,0
 96      2.046     2.46      10.102   ? 260,0
 97      1.832     2.83      9.843    ? 270,0
 98      1.602     3.002     9.584    ? 270,0
 99      1.371     2.974     9.326    ? 245
?? 0
 100     1.098     2.754     9.067    ? 260,90
 101     .782      2.445     8.909    ? 270,90
 102     .467      2.135     8.95     ? 285,0
 103     .178      1.729     9.092    ? 295,0
 104     -.043     1.135     9.233    ? 300,0
 105     -.172     .365      9.374
MESSAGE DELIVERED TO BASE # 3
AT TIME 105.48                        ? 90,0
 106     -.251     -.393     9.516    ? 75,0
 107     -.305     -.953     9.657    ? 80,0
 108     -.314     -1.319    9.799    ? 80,0
 109     -.29      -1.488    9.94     ? 80,0
 110     -.23      -1.459    10.081   ? 90,0
 111     -.153     -1.233    10.223   ? 90,0
 112     -.076     -.806     10.364   ? 90,0
 113     1E-03     -.179     10.506   ? 90,0
 114     .078      .648      10.647   ? 105,0
 115     .129      1.671     10.789   ? 103,270
 116     .154      2.791     10.83    ? 101,270
 117     .179      3.911     10.671   ? 99,0
 118     .189      5.13      10.413   ? 261,0
 119     .167      6.348     10.154   ? 270,90
 120     .13       7.468     9.996    ? 270,0
 121     .092      8.488     9.937    ? 260,90
 122     .055      9.408     9.979
MESSAGE DELIVERED TO BASE # 4
AT TIME 122.58   122.58 걸렸읍니다.        GOOD JOB.  DO YOU WANT TO
TRY TO IMPROVE YOUR TIME? NO THANK YOU!  다시 한 번 하겠읍니까?
Ok
```

```
10 PRINT TAB( 24);"MANEUVERS"
11 PRINT TAB( 20);"CREATIVE COMPUTING"
12 PRINT TAB( 18);"MORRISTOWN, NEW JERSEY"
13 PRINT:PRINT:PRINT
20 PRINT "DO YOU NEED INSTRUCTIONS";
30 INPUT X$
40 IF LEFT$(X$,1)="N" THEN 500
100 PRINT
110 PRINT "YOU ARE THE PILOT OF THE ENTERPRISE'S SPACE SHUTTLE."
120 PRINT "YOU MUST DELIVER A MESSAGE TO EACH OF FOUR STARBASES,"
130 PRINT "IN THE LEAST TOTAL TIME.  YOUR INITIAL POSITION IS AT"
140 PRINT "ONE CORNER OF A CUBE, TEN PARSECS ON A SIDE.  THE BASES"
150 PRINT "ARE AT THE CORNERS SHOWN BELOW, MARKED A, B, C, AND D IN"
160 PRINT "THE ORDER IN WHICH YOU MUST VISIT THEM."
165 PRINT:PRINT
166 GOSUB 10000
170 PRINT "                Z"
180 PRINT "                :"
190 PRINT "                :C"
200 PRINT "                *----------------------* D"
210 PRINT "               /:                     /:"
220 PRINT "              / :                    / :"
230 PRINT "             /  :                   /  :"
240 PRINT "            /   :                  /   :"
250 PRINT "           *----------------------*B   :"
260 PRINT "           :    :                 :    :"
270 PRINT "           :    :                 :    :"
275 PRINT "           :    :                 :    :"
280 PRINT "           :    :                 :    :"
285 PRINT "           :    :                 :    :"
290 PRINT "           :    :                 :    :"
300 PRINT "     START>>>*-----------------:------*---Y"
310 PRINT "           :   /                 :   /"
320 PRINT "           :  /                  :  /"
330 PRINT "           : /                   : /"
340 PRINT "          A:/                    :/"
350 PRINT "           *---------------------*"
360 PRINT "          /"
370 PRINT "         X"
372 GOSUB 10000
380 PRINT "FOR YOUR SUBSPACE RADIO TO DELIVER THE MESSAGE, YOU"
390 PRINT "MUST PASS WITHIN ONE PARSEC OF EACH STARBASE.  YOUR"
400 PRINT "PROPULSION SYSTEM IS ALWAYS ON, GIVING YOU A CONSTANT"
410 PRINT "ACCELERATION OF 0.2 PARSECS PER STARDATE PER STARDATE."
420 PRINT "YOU CAN ONLY CONTROL THE ORIENTATION OF YOUR SHIP, TO"
430 PRINT "DIRECT YOUR THRUST AND ACCELERATION.  YOU SPECIFY YOUR"
440 PRINT "SHIP'S ATTITUDE BY THE ANGLE THETA (THE CLOCKWISE ANGLE"
450 PRINT "IN THE X-Y PLANE STARTING AT THE X-AXIS) AND THE ANGLE"
460 PRINT "PSI (THE ANGLE OF INCLINATION ABOVE THE X-Y PLANE)."
470 PRINT "YOU INPUT NEW ANGLES EACH STARDATE."
500 PRINT
505 LET P=3.14159/180
510 LET J=1
520 DIM T(4,3),C(3)
530 FOR X=1 TO 4
540   FOR Y=1 TO 3
550     READ T(X,Y)
560   NEXT Y
570 NEXT X
580 DATA 10,0,0,10,10,10,0,0,10,0,10,10
590 LET A=.2
600 LET X1=0
610 LET Y1=0
620 LET Z1=0
630 LET V1=0
640 LET V2=0
650 LET V3=0
660 LET T0=0
670 LET B1=.001
680 LET B2=.001
700 PRINT "ELAPSED   POSITION COORDINATES:";
710 PRINT TAB( 38);"ORIENTATION"
720 PRINT " TIME      X          Y          Z";
730 PRINT TAB( 39);"THETA,PSI"
740 PRINT "-------  ---------------------      -----------"
800 PRINT USING " ###     #.###     #.###     #.###";
    T0; INT(1000*X1+.5)/1000; INT(1000*Y1+.5)/1000; INT(1000*Z1+.5)/1000;
806 PRINT TAB( 38);
810 FOR K=0 TO 1 STEP .02
820   LET C(1)=X+K*V1+A/2*K*K*COS(B2*P)*COS(B1*P)
830   LET C(2)=Y+K*V2+A/2*K*K*COS(B2*P)*SIN(B1*P)
840   LET C(3)=Z+K*V3+A/2*K*K*SIN(B2*P)
850   LET D=0
860   FOR L=1 TO 3
870     LET D=D+(T(J,L)-C(L))*(T(J,L)-C(L))
880   NEXT L
890   IF SQR(D)>1 GOTO 950
900   PRINT:PRINT  "MESSAGE DELIVERED TO BASE #";J
910   PRINT "AT TIME";T0+K;TAB( 38);
920   IF J=4 GOTO 1100
930   LET J=J+1
940   GOTO 960
950 NEXT K
960 LET X=X1
970 LET Y=Y1
980 LET Z=Z1
985 LET T0=T0+1
990 INPUT  B1,B2
1030 LET X1=X+V1+A/2*COS(B2*P)*COS(B1*P)
1040 LET Y1=Y+V2+A/2*COS(B2*P)*SIN(B1*P)
1050 LET Z1=Z+V3+A/2*SIN(B2*P)
1060 LET V1=V1+A*COS(B2*P)*COS(B1*P)
1070 LET V2=V2+A*COS(B2*P)*SIN(B1*P)
1080 LET V3=V3+A*SIN(B2*P)
1090 GOTO 800
1100 PRINT "GOOD JOB.  DO YOU WANT TO"
1110 PRINT "TRY TO IMPROVE YOUR TIME";
1120 INPUT X$
1130 IF LEFT$(X$,1)="Y" THEN 500
1140 END
10000 LINE INPUT "ENTER 'RETURN' TO CONTINUE. ";XX$
10010 PRINT CHR$(26)
10020 RETURN
```

Masterbagels(수 알아맞히기)

이것은 좀 논리적인 수 알아맞히기 게임이다. 그것도, bagels나 master mind를 커버하는 다목적용 프로그램이다.

bagels를 하고 싶으면 N, 3, 9 (N은 게임 수)를 입력하고, master mind를 하고 싶으면 N, 4, 6을 입력한다. 물론 N, 7, 4라든가 N, 5, 5를 입력하면, 계속해서 새로운 게임에 도전할 수 있다.

숫자는 300행~320행에서 선택되므로, 같은 숫자를 선택하면 받아들이지 않도록 개량하고 싶은 경우에는, 이 부분을 변경하면 된다. 실제로 이 프로그램에서는, 예를 들어 3자릿수의 경우 223이라든가 444와 같이 같은 숫자를 선택해도 받아들여진다. 또, 여러 번 시행해도 되게 하고 싶은 경우에는, 330행과 750행을 변경하면 된다(I의 값을 바꾼다).

Masterbagels was created by H.R. Hamilton and originally appeared in *Creative Computing*, Jan/Feb 1977.

```
RUN
                         MASTERBAGELS
                      CREATIVE COMPUTING
                    MORRISTOWN, NEW JERSEY
TEACH? YES
  HI, THIS IS A LOGIC GAME DESIGNED TO TEST YOUR DEDUCTIVE
ABILITY.  I WILL CHOOSE A RANDOM NUMBER AND YOU ISOLATE IT.
WHEN PROMPTED, ENTER A VALID NUMBER, AND I WILL THEN RESPOND
WITH THE # OF DIGITS THAT ARE RIGHT AND IN THE RIGHT POSITION
AND THE # RIGHT BUT IN THE WRONG POSITION.  IF I THINK YOU
ARE HOPELESSLY LOST, I WILL TELL YOU THE ANSWER AND WE
WILL GO ON TO THE NEXT NUMBER.  TO RECAP YOUR ENTRIES
ENTER A 0, TO QUIT ON A NUMBER ENTER 1, AND TO STOP ENTER 2
```

이것은 당신의 논리적 사고 능력을 테스트하는 게임입니다. 나는 난수로 수를 취할 것이니 알아맞히기 바랍니다. 당신이 입력한 수 중에서 자릿수와 숫자가 맞는 것이 몇 개인가를 출력한 다음, 장소는 틀리나 숫자가 맞는 것이 몇 개인가를 출력합니다. 도중에 경과를 알고 싶을 경우에는 0, 답을 보고 싶을 경우에는 1, 스톱하고 싶을 경우에는 2를 입력하십시오.

```
HOW MANY #'S(1-100), # DIGITS(2-6), AND MAX VALUE(2-9)? 2,2,4   몇 회, 자릿수, 숫자는?
GUESS? 12   몇이라고 생각합니까?
 0 , 1
GUESS? 31
 0 , 0
GUESS? 24
 3 TRIES, 3 AVERAGE FOR 1 NUMBERS   세 번째에 맞혔습니다. 평균 3.
GUESS? 24
 0 , 1
GUESS? 32
 1 , 0
GUESS? 22
 1 , 0
GUESS? 12
 4 TRIES, 3.5 AVERAGE FOR 2 NUMBERS
RUN AGAIN? YES   다시 한 번 하겠읍니까?

HOW MANY #'S(1-100), # DIGITS(2-6), AND MAX VALUE(2-9)? 1,4,6
GUESS? 1122
 1 , 1
GUESS? 1234
 2 , 0
GUESS? 3456
 0 , 2
GUESS? 1265
 1 , 1
GUESS? 2134
 1 , 1
GUESS? 0
 1 , 1 = 1122
 2 , 0 = 1234
 0 , 2 = 3456
 1 , 1 = 1265
 1 , 1 = 2134
GUESS? 2236
 1 , 2
GUESS? 2235
 1 , 1
GUESS? 1
ANSWER IS 6224
 10 TRIES, 10 AVERAGE FOR 1 NUMBERS
RUN AGAIN? NO
OK
```

```
5 PRINT CHR$(26);TAB( 23);"MASTERBAGELS"
6 PRINT TAB( 20);"CREATIVE COMPUTING"
7 PRINT TAB( 18);"MORRISTOWN, NEW JERSEY"
10 DIM F(9),M(9),T(9),H(18,3)
15 PRINT:PRINT
20 INPUT "INSTRUCTIONS";S$
30 IF LEFT$(S$,1)="N" THEN 130
40 PRINT
50 PRINT "  HI, THIS IS A LOGIC GAME DESIGNED TO TEST YOUR DEDUCTIVE"
60 PRINT "ABILITY.  I WILL CHOOSE A RANDOM NUMBER AND YOU ISOLATE IT."
70 PRINT "WHEN PROMPTED, ENTER A VALID NUMBER, AND I WILL THEN RESPOND"
80 PRINT "WITH THE # OF DIGITS THAT ARE RIGHT AND IN THE RIGHT POSITION
90 PRINT "AND THE # RIGHT BUT IN THE WRONG POSITION.  IF I THINK YOU"
100 PRINT "ARE HOPELESSLY LOST, I WILL TELL YOU THE ANSWER AND WE"
110 PRINT "WILL GO ON TO THE NEXT NUMBER.  TO RECAP YOUR ENTRIES"
120 PRINT "ENTER A 0, TO QUIT ON A NUMBER ENTER 1, AND TO STOP ENTER 2."
130 S=0
140 PRINT
150 PRINT "HOW MANY #'S (1-100), # DIGITS (2-6), AND MAX VALUE (2-9)";
160 INPUT J,A,B
180 IF A<=0 THEN 220
190 IF A>6 THEN 220
200 IF B<2 THEN 220
210 IF B<10 THEN 240
220 PRINT "ILLEGAL RANGE, RE-ENTER RUN PARAMETERS."
230 GOTO 160
240 IF J<100 THEN 260
250 J=100
260 FOR X=0 TO J+A+B
270 I=RND(1)
280 NEXT X
290 FOR N=1 TO J
300 FOR X=0 TO A
310 T(X)=INT(RND(1)*B+1)
320 NEXT X
330 FOR I=1 TO A+B+1
340 FOR X=1 TO A
350 F(X)=0
360 NEXT X
370 F1=0
380 F2=0
390 INPUT "GUESS";V
400 IF V<> 0 THEN 450
410 FOR X=1 TO I-1
420 PRINT H(X,1)","H(X,2)"="H(X,3)
430 NEXT X
440 GOTO 390
450 IF V=1 THEN 750
460 IF V=2 THEN 920
470 T1=V
480 FOR X=1 TO A
490 M(X)=INT(T1/(10^(A-X)))
500 T1=T1-M(X)*(10^(A-X))+((SGN(A-(X+1))-1)*-.5)
510 IF M(X)<1 THEN 530
520 IF M(X)<B+1 THEN 550
530 PRINT "BAD NUMBER IN"V;CHR$(8);" "
540 GOTO 340
550 IF M(X)<>T(X) THEN 580
560 F(X)=1
570 F1=F1+1
580 NEXT X
590 IF F1=A THEN 810
600 FOR Y=1 TO A
610 IF T(Y)=M(Y) THEN 690
620 FOR X=1 TO A
630 IF M(Y)<>T(X) THEN 680
640 IF F(X)=1 THEN 680
650 F(X)=1
660 F2=F2+1
670 GOTO 690
680 NEXT X
690 NEXT Y
700 PRINT F1","F2
710 H(I,1)=F1
720 H(I,2)=F2
730 H(I,3)=V
740 NEXT I
750 I=A-1+B+1
760 V=0
770 FOR X=1 TO A
780 V=V+T(X)*(10^(A-X))
790 NEXT X
800 PRINT "ANSWER IS"V;CHR$(8);" "
810 S=S+I
820 PRINT I;"TRIES,";S/N;"AVERAGE FOR";N;:
    IF N=1 THEN PRINT "NUMBER." ELSE PRINT "NUMBERS."
830 Y=INT(RND(R)*I)
840 Y=INT(H(Y,2)/1024+4*RND(1))
850 FOR X=1 TO Y+1
860 I=RND(1)
870 NEXT X
880 NEXT N
890 PRINT:INPUT "RUN AGAIN";S$
900 IF LEFT$(S$,1)="Y" THEN 130
920 END
```

Matpuzzle(퍼즐 행렬)

새로운 게임에 도전할 마음의 준비가 되어 있는가?

수퍼 스타 트랙도 슬로트 머신도 아닌 게임. 이 퍼즐 행렬에서 퍼즐 아트(puzzle art)를 맛보기 바란다.

puzzle이란 본디 개인의 사고 패턴을 시험하고 발전시키는 것.

이 게임에서는 최대 6×6의 알파벳 행렬과 숫자의 행렬이 주어진다.

입력하는 단어의 길이는 6문자까지 허용되며, 그 길이의 단어를 6개까지 입력할 수 있다. 입력된 단어는, 160행부터 430행까지에서 분해되어 행렬의 임의의 위치에 드문드문 놓여진다. 컴퓨터는, 500~780행에서 당신이 입력한 단어를 숫자화한다. 이것은, 앞에서 만든 알파벳 행렬 중에서 대응하는 문자를 찾아내어, 그 행번호와 열번호의 합계 값을 출력하는 것이다. 물론 합계 값이 같은 경우도 있다.

입력한 단어를 숨기고 친구들에게 맞히게 해 보는 것도 재미있을 것이다.

The program and description were written by Dave Schroeder.

```
RUN
                    MATPUZZLE
               CREATIVE COMPUTING
             MORRISTOWN, NEW JERSEY

THIS IS A PUZZLE-MAKING GAME.          이것은 퍼즐 게임입니다. 최대 6문자로 구
YOU INPUT UP TO SIX WORDS, UP TO SIX 성되는 단어를 6단어까지 입력할 수 있고,
LETTERS EACH, AND EQUAL IN LENGTH.     단어의 길이는 같아야 합니다.
THE COMPUTER WILL SCRAMBLE THEM AND
PRINT THEM IN A MATRIX.  THE COMPUTER
WILL ALSO PRINT A CORRESPONDING NUMBER
BOARD.  WHEN IT STOPS TEAR IT AND GIVE IT
TO A FRIEND.
HOW MANY WORDS DO YOU WANT (UP TO 6)? 6 몇 단어를 입력하겠읍니까?
HOW MANY LETTERS IN EACH WORD (MUST BE SAME)? 6 몇 문자로 구성되는 단어입니까?
TYPE ONE 6 LETTER WORD ON EACH LINE
? PARITY
? DUPLES\S\X
? MATRIX
?,NUMBER
? LENGTH
? MOTHER

---------------------------- ( TEAR HERE ) ----------------------------
      1   2   3   4   5   6    분해

1     I   A   T   X   L   N

2     E   E   R   M   H   I

3     B   N   P   N   G   T

4     U   L   O   A   R   B

5     X   R   E   E   N   M

6     T   T   U   P   Y   R


   6       3       5       2       7      11
 -----   -----   -----   -----   -----   -----
   4       5      10       6       4       5
 -----   -----   -----   -----   -----   -----
   6       8       4       9       8       6
 -----   -----   -----   -----   -----   -----
   7       9      11      10       8       7
 -----   -----   -----   -----   -----   -----
   6       3      10       8       8       7
 -----   -----   -----   -----   -----   -----
   5       7       9       7       9      12
 -----   -----   -----   -----   -----   -----
```

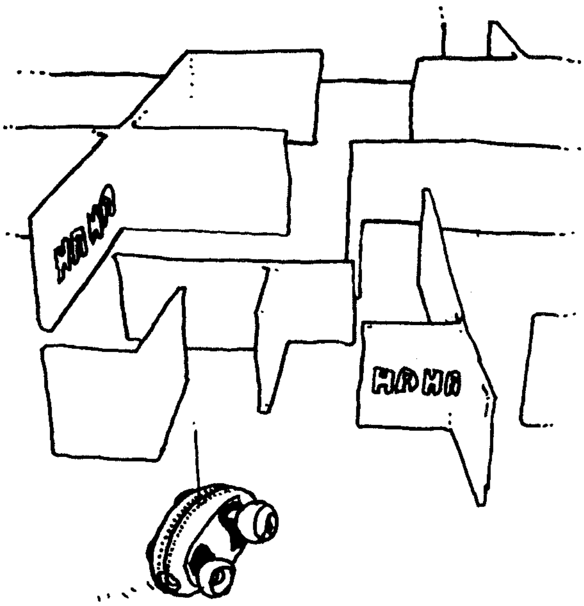
앞에서 만든 알파벳 행렬 중에서 당신이 입력한 문자와 같은 문자를 찾아내어, 그 행번호와 열번호의 합계 값을 출력한 것입니다.
원래의 단어를 맞혀 보십시오.

```
THE NUMBER ABOVE EACH DASH IS THE SUM OF TWO COORDINATES OF
THE POINT ON THE MATRIX WHERE THE CORRECT LETTER FOR THAT
SPOT WILL APPEAR.  THE PROBLEM IS THAT THE SUM OF SOME
COORDINATES ARE THE SAME SO SEVERAL LETTERS COULD FIT.  SO
TRY NOW TO FIND WHAT WORDS WERE USED AND SOLVE THE PUZZLE
-- GOOD LUCK
DO YOU WANT  ANOTHER RUN? YES 다시 한 번 하겠읍니까?
HOW MANY WORDS DO YOU WANT (UP TO 6)? 4
HOW MANY LETTERS IN EACH WORD (MUST BE SAME)? 5
TYPE ONE 5 LETTER WORD ON EACH LINE
? PRINT
? BASIC
? EQUAL
? POINT
```

```
---------------------------- ( TEAR HERE ) ---------------------------
      1   2   3   4   5

1     R   Q   C   U   E

2     I   T   A   N   L

3     I   I   S   B   P

4     O   N   T   P   A


   8       2       3       6       4

 -----   -----   -----   -----   -----
   7       5       6       5       4

 -----   -----   -----   -----   -----
   6       3       5       9       7

 -----   -----   -----   -----   -----
   8       5       4       6       7

 -----   -----   -----   -----   -----


THE NUMBER ABOVE EACH DASH IS THE SUM OF TWO COORDINATES OF
THE POINT ON THE MATRIX WHERE THE CORRECT LETTER FOR THAT
SPOT WILL APPEAR.  THE PROBLEM IS THAT THE SUM OF SOME
COORDINATES ARE THE SAME SO SEVERAL LETTERS COULD FIT.  SO
TRY NOW TO FIND WHAT WORDS WERE USED AND SOLVE THE PUZZLE
-- GOOD LUCK
DO YOU WANT  ANOTHER RUN? NO
OK
```

```
1 PRINT CHR$(26);TAB( 26)"MATPUZLE"
2 PRINT TAB( 20)"CREATIVE COMPUTING"
3 PRINT TAB( 18)"MORRISTOWN, NEW JERSEY"
4 PRINT:PRINT
10 DIM A$(6),B$(6,6),C(6,6),C$(6,6)
20 PRINT"THIS IS A PUZZLE-MAKING GAME."
30 PRINT"YOU INPUT UP TO SIX WORDS, UP TO SIX"
40 PRINT"LETTERS EACH, AND EQUAL IN LENGTH."
50 PRINT"THE COMPUTER WILL SCRAMBLE THEM AND"
60 PRINT"PRINT THEM IN A MATRIX.  THE COMPUTER "
70 PRINT"WILL ALSO PRINT A CORRESPONDING NUMBER"
80 PRINT"BOARD.  WHEN IT STOPS TEAR IT AND GIVE IT"
90 PRINT"TO A FRIEND."
95 PRINT
100 PRINT"HOW MANY WORDS DO YOU WANT (UP TO 6)";
105 INPUT W
110 PRINT"HOW MANY LETTERS IN EACH WORD (MUST BE SAME)";
115 INPUT L
120 PRINT"TYPE ONE";L;"LETTER WORD ON EACH LINE"
130 FOR X=1 TO W
140 INPUT A$(X)
150 NEXT X
160 FOR X=1 TO W
170 FOR  Y=1 TO L
180 C$(X,Y)=MID$(A$(X),Y,1):B$(X,Y)=MID$(A$(X),Y,1)
190 NEXT Y
200 NEXT X
210 PRINT
215 FOR P=1 TO 28
220 PRINT"-";
221 NEXT P
225 PRINT TAB( 29)"( TEAR HERE )";
226 PRINT TAB( 43);:FOR P1=1 TO 27
227 PRINT "-";
228 NEXT P1
230 PRINT
240 FOR Z=1 TO 60
250 F=INT(RND(1)*W+1)
260 D=INT(RND(1)*W+1)
270 G=INT(RND(1)*L+1)
280 E=INT(RND(1)*L+1)
290 J$=B$(F,G)
300 B$(F,G)=B$(D,E)
310 B$(D,E)=J$
320 NEXT Z
330 PRINT TAB( 6);
340 FOR Z1=1 TO L
350 PRINT Z1;" ";
360 NEXT Z1
370 PRINT
380 PRINT
390 FOR Z2=1 TO W
400 PRINT Z2;"   ";
410 FOR Z3=1 TO L
420 PRINT B$(Z2,Z3);"   ";
430 NEXT Z3
440 PRINT
450 PRINT
460 NEXT Z2
470 PRINT
480 PRINT
490 PRINT
500 FOR P=1 TO L
510 FOR Q=1 TO W
520 T=0
530 FOR R=1 TO W
540 FOR S=1 TO L
550 IF T=1 THEN 600
560 IF B$(R,S)<>C$(Q,P)THEN 600
570 C(Q,P)=R+S
580 T=1
590 B$(R,S)=" "
600 NEXT S
610 NEXT R
620 NEXT Q
630 NEXT P
640 FOR X=1 TO W
650 PRINT TAB( 3)
660 FOR M=1 TO L
670 IF C(X,M)>9 THEN 700
680 PRINT C(X,M);"      ";
690 GOTO 710
700 PRINT C(X,M);"     ";
710 NEXT M
720 PRINT:PRINT
730 PRINT TAB( 2);
740 FOR M1=1 TO L
750 PRINT"-----";"   ";
760 NEXT M1
770 PRINT
780 NEXT X
790 PRINT
800 PRINT
810 PRINT"THE NUMBER ABOVE EACH DASH IS THE SUM OF TWO COORDINATES OF "
820 PRINT"THE POINT ON THE MATRIX WHERE THE CORRECT LETTER FOR THAT "
830 PRINT"SPOT WILL APPEAR.  THE PROBLEM IS THAT THE SUM OF SOME "
840 PRINT"COORDINATES ARE THE SAME SO SEVERAL LETTERS COULD FIT.  SO "
850 PRINT"TRY NOW TO FIND WHAT WORDS WERE USED AND SOLVE THE PUZZLE.":PRINT
855 PRINT"-- GOOD LUCK"
860 PRINT:PRINT"DO YOU WANT ANOTHER RUN";
861 INPUT Y9$
870 IF LEFT$(Y9$,1)="Y" THEN 100
880 END
```

Maze(미 로)



컴퓨터가 만든 미로를, 실제로 종이와 연필을 가지고 돌진하여 빠져나가는 길을 찾아내는 게임이다. 미로의 크기는 게임초에 당신이 지정한다. 미로 한 칸의 가로 폭은 3문자분이므로, 72자리의 프린터는 24칸까지, 132자리의 프린터는 44칸까지 증가시킬 수 있다. 세로는 종이와 컴퓨터가 허용하는 한 얼마든지 크게 할 수 있다.

답을 찾아내면, 컴퓨터에게 답을 출력하도록 한다. 컴퓨터는 '독 안에 든 쥐' 방식으로 답을 찾는다. 컴퓨터가 답을 찾아내는 과정을 보고 싶으면, 그것도 출력해 준다.

자아, 커다란 미로에 도전해 보자.

This program was conceived and written by Richard Schaal.

```
RUN
                              MAZE
                        CREATIVE COMPUTING
                      MORRISTOWN, NEW JERSEY


DO YOU NEED INSTRUCTIONS? YES 설명이 필요합니까?

THIS PROGRAM WILL SIMULATE A NEAR-SIGHTED MOUSE IN
A MAZE.  YOU SELECT THE DIFFICULTY FACTOR - SIZE!
YOU MAY HAVE A MAZE OF ANY SIZE PERMITTED BY THE SIZE OF YOUR
SYSTEM. DIMENSIONS LESS THAN 5 ARE TOO TRIVIAL. 크기를 지정합니다. 5 이하라면
EACH MAZE IS DIFFERENT, AND HAS ONLY ONE WAY THROUGH IT. 재미가 없겠지요.

WHAT ARE YOUR DIMENSIONS (HORIZONTAL, VERTICAL)? 10,10 크기(가로×세로)는?

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DO YOU WANT THE SOLUTION? YES 답을 보겠읍니까?
DO YOU WANT TO SEE EACH STEP? NO 답을 찾는 과정도 보겠읍니까?


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DO YOU WANT ANOTHER MAZE? YES 다시 한 번 하겠읍니까?
WHAT ARE YOUR DIMENSIONS (HORIZONTAL, VERTICAL)? 6,6 크기는?
```

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DO YOU WANT THE SOLUTION? YES
DO YOU WANT TO SEE EACH STEP? YES

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10 PRINT TAB( 27);"MAZE"
20 PRINT TAB( 20);"CREATIVE COMPUTING"
30 PRINT TAB( 18);"MORRISTOWN, NEW JERSEY"
40 PRINT:PRINT:PRINT
100 REM  MOUSE IN MAZE - SOLUTION SECTION BY RICHARD SCHAAL FMCC
110 REM  ORIGINAL MAZE PROGRAM FROM "101 BASIC COMPUTER GAMES"
120 PRINT "DO YOU NEED INSTRUCTIONS";:INPUT A$
130 IF LEFT$(A$,1)="Y" THEN 150
140 GOTO 200
150 PRINT:PRINT:PRINT "THIS PROGRAM WILL SIMULATE A NEAR-SIGHTED MOUSE IN"
160 PRINT "A MAZE.  YOU SELECT THE DIFFICULTY FACTOR - SIZE!"
170 PRINT "YOU MAY HAVE A MAZE OF ANY SIZE PERMITTED BY THE SIZE OF YOUR"
180 PRINT "SYSTEM. DIMENSIONS LESS THAN 5 ARE TOO TRIVIAL."
190 PRINT "EACH MAZE IS DIFFERENT, AND HAS ONLY ONE WAY THROUGH IT."
200 PRINT
210 PRINT "WHAT ARE YOUR DIMENSIONS (HORIZONTAL, VERTICAL)";
220 CLEAR 100: REM ERASE ALL ARRAYS AND VARIABLE VALUES
230 INPUT H,V
235 PRINT CHR$(26)
240 H=INT(ABS(H)):V=INT(ABS(V))
250 IF H>=5 AND V>=5 THEN 270
260 GOTO 150
270 DIM W(H,V),V(H,V)
280 PRINT:PRINT
290 Q=0:Z=0
300 X=INT(RND(1)*H+1)
310 FOR I=1 TO H
320 IF I=X THEN 350
330 PRINT ":--";
340 GOTO 360
350 PRINT ":  ";
360 NEXT I
370 PRINT ":"
380 C=1:W(X,1)=C:C=C+1:R=X:S=1
390 GOTO 470
400 IF R<>H THEN 450
410 IF S<>V THEN 440
420 R=1:S=1
430 GOTO 460
440 R=1:S=S+1:GOTO 460
450 R=R+1
460 IF W(R,S)=0 THEN 400
470 IF R=1 THEN 830
480 IF W(R-1,S)>0 THEN 830
490 IF S=1 THEN 640
500 IF W(R,S-1)<>0 THEN 640
510 IF R=H THEN 550
520 IF W(R+1,S)>0 THEN 550
530 X=INT(RND(1)*3+1)
540 ON X GOTO 1200,1240,1280
550 IF S<>V THEN 590
560 IF Z=1 THEN 620
570 Q=1
580 GOTO 600
590 IF W(R,S+1)>0 THEN 620
600 X=INT(RND(1)*3+1)
610 ON X GOTO 1200,1240,1370
620 X=INT(RND(1)*2+1)
630 ON X GOTO 1200,1240
640 IF R=H THEN 750
650 IF W(R+1,S)>0 THEN 750
660 IF S<>V THEN 700
670 IF Z=1 THEN 730
680 Q=1
690 GOTO 710
700 IF W(R,S+1)>0 THEN 730
710 X=INT(RND(1)*3+1)
720 ON X GOTO 1200,1280,1370
730 X=INT(RND(1)*2+1)
740 ON X GOTO 1200,1280
750 IF S<>V THEN 790
760 IF Z=1 THEN 820
770 Q=1
780 GOTO 800
790 IF W(R,S+1)>0 THEN 820
800 X=INT(RND(1)*2+1)
810 ON X GOTO 1200,1370
820 GOTO 1200
```

```
830 IF S=1 THEN 1040
840 IF W(R,S-1)>0 THEN 1040
850 IF R=H THEN 960
860 IF W(R+1,S)>0 THEN 960
870 IF S<>V THEN 910
880 IF Z=1 THEN 940
890 Q=1
900 GOTO 920
910 IF W(R,S+1)>0 THEN 940
920 X=INT(RND(1)*3+1)
930 ON X GOTO 1240,1280,1370
940 X=INT(RND(1)*2+1)
950 ON X GOTO 1240,1280
960 IF S<>V THEN 1000
970 IF Z=1 THEN 1030
980 Q=1
990 GOTO 1010
1000 IF W(R,S+1)>0 THEN 1030
1010 X=INT(RND(1)*2+1)
1020 ON X GOTO 1240,1370
1030 GOTO 1240
1040 IF R=H THEN 1140
1050 IF W(R+1,S)>0 THEN 1140
1060 IF S<>V THEN 1100
1070 IF Z=1 THEN 1130
1080 Q=1
1090 GOTO 1110
1100 IF W(R,S+1)>0 THEN 1130
1110 X=INT(RND(1)*2+1)
1120 ON X GOTO 1280,1370
1130 GOTO 1280
1140 IF S<>V THEN 1180
1150 IF Z=1 THEN 400
1160 Q=1
1170 GOTO 1190
1180 IF W(R,S+1)>0 THEN 400
1190 GOTO 1370
1200 W(R-1,S)=C:C=C+1:V(R-1,S)=2:R=R-1
1210 IF C=H*V+1 THEN 1510
1220 Q=0
1230 GOTO 470
1240 W(R,S-1)=C:C=C+1:V(R,S-1)=1:S=S-1
1250 IF C=H*V+1 THEN 1510
1260 Q=0
1270 GOTO 470
1280 W(R+1,S)=C:C=C+1
1290 IF V(R,S)=0 THEN 1320
1300 V(R,S)=3
1310 GOTO 1330
1320 V(R,S)=2
1330 R=R+1
1340 IF C=H*V+1 THEN 1510
1350 Q=0
1360 GOTO 830
1370 IF Q=1 THEN 1470
1380 W(R,S+1)=C
1390 C=C+1
1400 IF V(R,S)=0 THEN 1430
1410 V(R,S)=3
1420 GOTO 1440
1430 V(R,S)=1
1440 S=S+1
1450 IF C=H*V+1 THEN 1510
1460 GOTO 470
1470 Z=1
1480 IF V(R,S)=0 THEN 1500
1490 V(R,S)=3:Q=0:GOTO 400
1500 V(R,S)=1:Q=0:R=1:S=1:GOTO 460
1510 IF Z=1 THEN 1540
1520 R=INT(RND(1)*H)+1:S=V
1530 V(R,S)=V(R,S)+1
1540 GOSUB 2320
1550 PRINT "DO YOU WANT THE SOLUTION";:INPUT A$
1560 IF LEFT$(A$,1)<>"Y" THEN 2620
1570 PRINT "DO YOU WANT TO_SEE EACH STEP";:INPUT A$:PRINT:PRINT
1575 PRINT CHR$(26)
1580 FOR I=1 TO H:IF W(I,1)=1 THEN S=I:GOTO 1720
1590 NEXT I
1600 REM NOW WE CAN CLEAR W ARRAY AS ENTRY POINT IS FOUND.
1610 REM ELEMENTS IN V ARE EITHER 0,1,2 OR 3
1620 REM 0 IS CLOSED ON THE RIGHT AND AT THE BOTTOM
1630 REM 1 IS CLOSED ON THE RIGHT
1640 REM 2 IS CLOSED ON THE BOTTOM
1650 REM 3 IS OPEN ON THE RIGHT AND AT THE BOTTOM
1660 REM DIRECTIONS WILL BE CODED:
1670 REM  1 : UP
1680 REM  2 : DOWN
1690 SEM  4 : RIGHT
1700 REM  8 : LEFT
1710 REM SCAN V ARRAY FOR POSSIBLE MOVES IN ALL DIRECTIONS
1720 FOR I=1 TO H:FOR J=1 TO V
1730 W(I,J)=0
1740 REM TRY UP
1750 IF J=1 THEN 1780
1760 IF V(I,J-1)=1 OR V(I,J-1)=3 THEN W(I,J)=W(I,J)+1
1770 REM TRY DOWN
1780 IF J=V THEN 1810
1790 IF V(I,J)=1 OR V(I,J)=3 THEN W(I,J)=W(I,J)+2
1800 REM TRY RIGHT
1810 IF I=H THEN 1840
1820 IF V(I,J)=2 OR V(I,J)=3 THEN W(I,J)=W(I,J)+4
1830 REM TRY LEFT
1840 IF I=1 THEN 1860
1850 IF V(I-1,J)=2 OR V(I-1,J)=3 THEN W(I,J)=W(I,J)+8
1860 NEXT J
1870 NEXT I
1880 FOR I=1 TO H
1890 IF V(I,V)=1 OR V(I,V)=3 THEN W(I,V)=W(I,V)+2:E=I:GOTO 1920
1900 NEXT I
1910 REM HAVE TO GO DOWN FIRST
1920 Y=1:X=S
1930 V(X,Y)=V(X,Y)+4
1940 REM CHECK FOR POSSIBLE DIRECTIONS NOW...
1950 IF Y=V AND X=E THEN PRINT:GOSUB 2250:PRINT:PRINT:GOTO 2620
1960 GOSUB 2230
1970 REM CHECK POSSIBLE DIRECTIONS
1980 IF (W(X,Y) AND 2) <> 0 THEN 2030
1990 IF (W(X,Y) AND 4) <> 0 THEN 2080
2000 IF (W(X,Y) AND 8) <> 0 THEN 2130
2010 IF (W(X,Y) AND 1) <> 0 THEN 2180
2020 GOTO 1950
2030 IF (V(X,Y+1)>3) AND ((W(X,Y) AND 13)=0) THEN 2060
2040 IF V(X,Y+1)>3 THEN 1990
2050 Y=Y+1:V(X,Y)=V(X,Y)+4:GOTO 1950
2060 V(X,Y)=V(X,Y)-4:W(X,Y)=(W(X,Y) AND 13):Y=Y+1:W(X,Y)=(W(X,Y) AND 14)
2070 GOTO 1950
2080 IF (V(X+1,Y)>3) AND ((W(X,Y) AND 11)=0) THEN 2110
2090 IF V(X+1,Y)>3 THEN 2000
2100 X=X+1:V(X,Y)=V(X,Y)+4:GOTO 1950
2110 V(X,Y)=V(X,Y)-4:W(X,Y)=(W(X,Y) AND 11):X=X+1:W(X,Y)=(W(X,Y) AND 7)
2120 GOTO 1950
2130 IF (V(X-1,Y)>3) AND ((W(X,Y) AND 7)=0) THEN 2160
2140 IF V(X-1,Y)>3 THEN 2010
2150 X=X-1:V(X,Y)=V(X,Y)+4:GOTO 1950
2160 V(X,Y)=V(X,Y)-4:W(X,Y)=(W(X,Y) AND 7):X=X-1:W(X,Y)=(W(X,Y) AND 11)
2170 GOTO 1950
2180 IF (V(X,Y-1)>3) AND ((W(X,Y) AND 14)=0) THEN 2210
2190 IF V(X,Y-1)>3 THEN 1980
2200 Y=Y-1:V(X,Y)=V(X,Y)+4:GOTO 1950
2210 V(X,Y)=V(X,Y)-4:W(X,Y)=(W(X,Y) AND 14):Y=Y-1:W(X,Y)=(W(X,Y) AND 13)
2220 GOTO 1950
2230 IF LEFT$(A$,1)<>"Y" THEN RETURN
2240 PRINT
2250 FOR I=1 TO H
2260 IF I=S THEN 2290
2270 PRINT ":--";
2280 GOTO 2300
2290 PRINT ":**";
2300 NEXT I
2310 PRINT ":"
2320 FOR J=1 TO V
2330 PRINT "I";
2340 FOR I=1 TO H
2350 IF V(I,J)>3 THEN Z=V(I,J)-4:GOTO 2370
2360 Z=V(I,J)
2370 IF Z<2 THEN 2420
2380 IF Z<>V(I,J) AND V(I+1,J)>3 THEN PRINT "***";:GOTO 2440
2390 IF Z<>V(I,J) THEN PRINT "** ";:GOTO 2440
2400 PRINT "   ";
2410 GOTO 2440
2420 IF Z<>V(I,J) THEN PRINT "**I";:GOTO 2440
2430 PRINT "  I";
2440 NEXT I
2450 PRINT
2460 FOR I=1 TO H
2470 IF V(I,J)>3 THEN Z=V(I,J)-4:GOTO 2490
2480 Z=V(I,J)
2490 IF Z=0 THEN 2560
2500 IF Z=2 THEN 2560
2510 IF Z<>V(I,J) AND J=V THEN PRINT ":**";:GOTO 2570
2520 IF J=V THEN 2540
2530 IF Z<>V(I,J) AND V(I,J+1)>3 THEN PRINT ":**";:GOTO 2570
2540 PRINT ":  ";
2550 GOTO 2570
2560 PRINT ":--";
2570 NEXT I
2580 PRINT ":"
2590 NEXT J
2600 PRINT:PRINT
2610 RETURN
2620 PRINT:PRINT:PRINT "DO YOU WANT ANOTHER MAZE";:INPUT A$
2630 IF LEFT$(A$,1)="Y" THEN PRINT : GOTO 210
2640 END
```

Millionaire(백만 장자)

이 게임은 컴퓨터가 당신에게, 출생해서 죽을 때까지의 꿈의 인생을 체험시켜 준다. 게임이 진행됨에 따라, 당신은 차례차례 인생의 기로에 서게 된다. 취직, 라스베가스에서의 도박, 옛날돈 구입, 휴가나 전직, 주식 매매, 자동차 사고 등 여러 가지 사건에 부딪치게 되고, 그에 대한 결단을 내려야 한다.

최후로 당신이 죽을 때, 컴퓨터는 당신 인생의 수지 결산을 보여 준다.

당신은 과연 백만 장자가 될 수 있을까? 게임을 통해 멋진 인생을 경험해 보라.

Millionaire was conceived and written by Craig Gunnett, a dreamer to the very end.

```
RUN
                         MILLIONAIRE
                      CREATIVE COMPUTING
                    MORRISTOWN, NEW JERSEY


THIS IS THE GAME OF 'MILLIONAIRE'.  ALL YOU MUST DO IS
TYPE IN YOUR NAME AND ANSWER SOME QUESTIONS.  THE
DECISIONS YOU MAKE WILL DETERMINE HOW MUCH MONEY YOU
MAKE.  AT THE TIME OF YOUR DEATH, YOUR LIFE WILL BE
RATED BY THE AMOUNT OF MONEY YOU MADE THROUGHOUT
YOUR LIFE.  IF YOU HAVE MADE $1,000,000 , YOU WILL BE
A MILLIONAIRE AND WIN THE GAME.  NAME PLEASE? STEVE 이름은?

O.K., STEVE, THIS IS YOUR NEW LIFE!                   당신은 1980년 10월 28일
IN A SMALL TOWN, ON OCT 28 , 1980, STEVE IS BORN.     에 출생했읍니다. 1998년 6
YOUR PARENTS ARE VERY POOR.  ON JUN 12 ,  1998 , YOU  월 12일, 410달러를 가지고
LEAVE HOME WITH $ 410                                 집을 나갑니다.
YOU GOT A NEW JOB AS A FOOTBALL PLAYER.  YOU EARN $ 118031
YOU ADJUST YOUR EXPENSES TO $ 110907  A YEAR. 축구 선수가 되었읍니다.
                         1년에 118031달러를 벌어 110907달러를 씁니다.
SEP 27 , 2001
THE DOCTOR SAYS YOU NEED A VACATION.  DO YOU GO? YES 휴가를 갖겠읍니까?

GOOD, THE VACATION COSTS $ 2671  좋습니다. 휴가로 2671달러를 썼읍니다.
YOU NOW HAVE $-2261

MAR 7 , 2011
THE INTEREST ON YOUR LOAN IS $ 1582 .  YOU HAVE $-3843
YOU GO TO LAS VEGAS TO GAMBLE.  HOW MUCH DO YOU BET? 100 라스베가스에 왔읍니다.
                                                        몇 달러 걸겠읍니까?
YOU WON $ 138 138달러 땄읍니다.
YOU NOW HAVE $-3705
YOUR EARNINGS AND EXPENSES LEAVE YOU WITH $ 67535

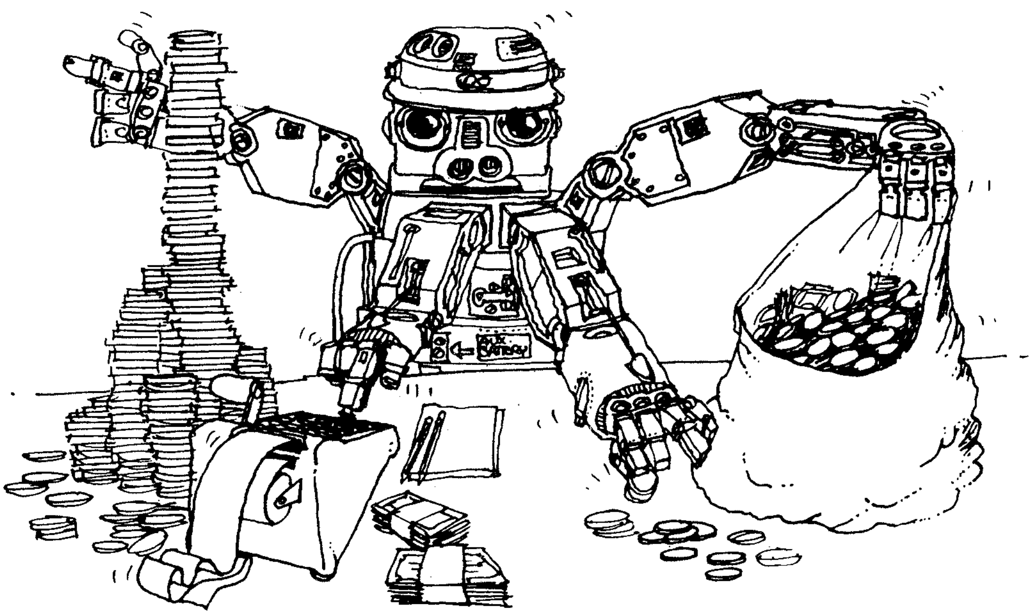
AUG 6 , 2016
NEWS FLASH!!! A TORNADO HAS JUST HIT THE HOME OF STEVE 속보! 회오리바람이 당신 집을
DAMAGES HAVE BEEN ESTIMATED AT $ 23999                 덮쳤읍니다. 손해는 23999달러.
YOU NOW HAVE $ 43536
YOUR EARNINGS AND EXPENSES LEAVE YOU WITH $ 79156

SEP 22 , 2025
YOUR GRANDFATHER GROVERS JUST DIED. (OH!)  HE LEFT  할아버지께 유산을
YOU $ 60773 , BUT FUNERAL EXPENSES ARE $ 12587      물려받았읍니다.
YOU NOW HAVE $ 127342
YOUR EARNINGS AND EXPENSES LEAVE YOU WITH $ 191458

SEP 20 , 2033
YOU JUST HAD A CAR ACCIDENT!  MEDICAL COSTS  자동차 사고를 당했읍니다.
ARE $ 1975 . REPAIRS COST $ 1584
YOU NOW HAVE $ 187899
YOUR EARNINGS AND EXPENSES LEAVE YOU WITH $ 244891

MAY 20 , 2038
YOUR HOME HAS BEEN ROBBED OF GOODS WORTH $ 13878 도둑이 들었읍니다.
YOU NOW HAVE $ 231013
YOUR EARNINGS AND EXPENSES LEAVE YOU WITH $ 266633

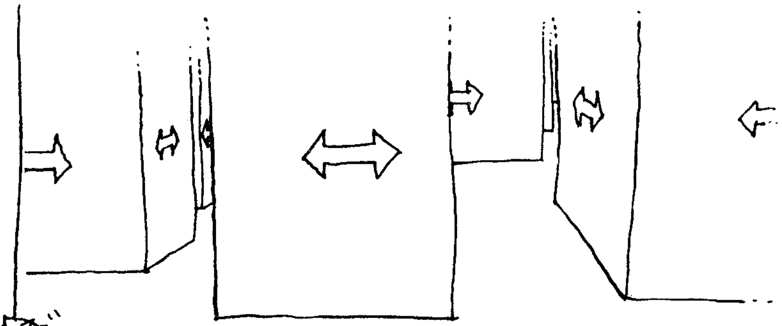
MAY 1 , 2043
OH! YOU JUST GOT CANCER.  MEDICAL BILLS ARE $ 4638 아! 당신은 암에 걸렸읍니다.
YOU ARE DEAD (COULD'NT TELL, COULD YOU?) AT THE    임종입니다. 향년 63세.
AGE OF  63 .
YOU HAD $ 261995 당신은 261995달러 남겼읍니다.
NOT BAD, STEVE  훌륭합니다.
THANKS FOR PLAYING 'MILLIONAIRE', STEVE!!!!
Ok
```

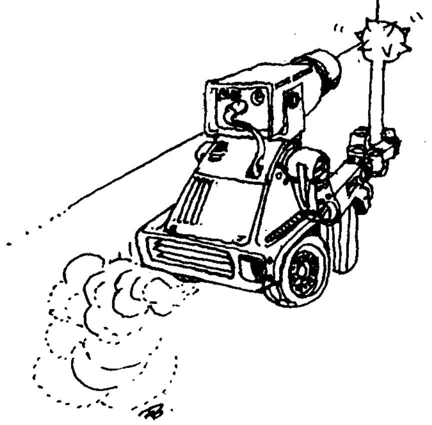


```
1 PRINT CHR$(26);TAB( 23);"MILLIONAIRE"
2 PRINT TAB( 20);"CREATIVE COMPUTING"
3 PRINT TAB( 18);"MORRISTOWN, NEW JERSEY"
4 PRINT:PRINT:PRINT
5 F$="$###,###"
10 REM    MILLIONAIRE BY CRAIG GUNNETT
20 PRINT "THIS IS THE GAME OF 'MILLIONAIRE'.  ALL YOU MUST DO IS"
30 PRINT "TYPE IN YOUR NAME AND ANSWER SOME QUESTIONS.  THE"
40 PRINT "DECISIONS YOU MAKE WILL DETERMINE HOW MUCH MONEY YOU"
50 PRINT "MAKE.  AT THE TIME OF YOUR DEATH, YOUR LIFE WILL BE"
60 PRINT "RATED BY THE AMOUNT OF MONEY YOU MADE THROUGHOUT"
70 PRINT "YOUR LIFE.  IF YOU HAVE MADE $1,000,000 , YOU WILL BE"
80 PRINT "A MILLIONAIRE AND WIN THE GAME.  NAME PLEASE";
100 LET O=-1
110 DIM A$(20),Z$(1),M$(36),S(9),Q(16)
120 FOR I=1 TO 4
130   LET S(I)=150
140 NEXT I
150 INPUT A$
160 PRINT
170 PRINT "O.K., ";A$;", THIS IS YOUR NEW LIFE!"
180 LET M$="JANFEBMARAPRMAYJUNJULAUGSEPOCTNOVDEC"
190 IF RND(1)>.5 GOTO  220
200 PRINT "ON A BIG FARM";
210 GOTO 230
220 PRINT "IN A SMALL TOWN";
230 LET T=INT(RND(1)*12)+1
240 PRINT ", ON ";MID$(M$,3*T-2,3);INT(RND(1)*28)+1;CHR$(8);", 1980,";
250 PRINT " ";A$;" IS BORN."
260 PRINT "YOUR PARENTS ARE VERY ";
270 IF RND(1)>.5 GOTO  310
280 PRINT "RICH. ";
290 LET M=INT(RND(1)*5000)+10000
300 GOTO 330
310 PRINT "POOR. ";
320 LET M=INT((RND(1)+RND(1))/2*1000)
330 LET T=INT(RND(1)*12)+1
340 LET Y=1996+INT(RND(1)*10)
350 PRINT "ON ";MID$(M$,T*3-2,3);T*2;CHR$(8);",";Y;CHR$(8);", YOU"
360 PRINT "LEAVE HOME WITH ";:PRINT USING F$;M;:PRINT "."
370 LET Y=Y+INT(RND(1)*3)+1
380 GOSUB  680
390 FOR J=1 TO 13
400 IF (J/3)-INT(J/3)+E=0 THEN GOSUB 680
410   LET D=INT(28*RND(1))+1
420   LET M1=(INT(12*RND(1))+1)*3
430   PRINT
440 PRINT MID$(M$,M1-2,3);D;CHR$(8);",";Y
450   IF Y-1980<70 GOTO  500
460   IF RND(1)>.5 GOTO  500
470   PRINT "YOU ARE DEAD (COULD'NT TELL, COULD YOU?) AT THE"
480   PRINT "AGE OF";Y-1980;CHR$(8);"."
490   GOTO 2370
500   IF M>=0 GOTO 540
510   LET I=INT(.07*Y9*(-M))
520   LET M=M-I
530   PRINT "THE INTEREST ON YOUR LOAN IS ";:PRINT USING F$;I;:
      PRINT ". YOU HAVE ";:PRINT USING F$;M;:PRINT "."
540   LET Q=INT(13*RND(1))+1
550   IF Q(Q)=1 GOTO 540
560   LET Q(Q)=1
570   ON Q GOTO  890, 1010, 1100, 1220, 1280, 1430, 1530
580   ON (Q-7) GOTO  1850, 1930, 2060, 2120, 2240, 2280
590   PRINT "YOU NOW HAVE ";:PRINT USING F$;M;:PRINT "."
600   IF O=-2 GOTO 1530
610   IF J=1 GOTO  640
620   LET M=M+(E-C)*Y9
630   PRINT "YOUR EARNINGS AND EXPENSES LEAVE YOU WITH ";:
      PRINT USING F$;M;:PRINT "."
640   LET Y9=INT(RND(1)*6)+5
650   LET Y=Y+Y9
660 NEXT J
670 GOTO 470
680 REM       JOB SUB
690 PRINT "YOU GOT A NEW JOB AS A ";
700 ON INT(RND(1)*5)+1 GOTO  740, 770, 800, 830
710 PRINT "TEACHER";
720 LET E=INT(RND(1)*4000)+17000
730 GOTO 850
740 PRINT "LAWYER";
750 LET E=INT(RND(1)*40000!)+80000!
760 GOTO 850
770 PRINT "COMPUTER PROGRAMMER";
780 LET E=INT(RND(1)*5000)+20000
790 GOTO 850
800 PRINT "BUS DRIVER";
810 LET E=INT(RND(1)*2000)+16000
820 GOTO 850
830 PRINT "FOOTBALL PLAYER";
840 LET E=INT(RND(1)*100000!)+100000!
850 LET C=E-10000+INT((RND(1)+RND(1))*5000)
860 PRINT ". YOU EARN ";:PRINT USING F$;E;:PRINT " A YEAR."
```

```
870 PRINT "YOU ADJUST YOUR EXPENSES TO "; :PRINT USING F$;C; :PRINT" A YEAR."
880 RETURN
890 PRINT "YOU GO TO LAS VEGAS TO GAMBLE.  HOW MUCH DO YOU BET";
900 INPUT S
910 PRINT
920 IF S<=0 GOTO 1000
930 IF RND(1)>.7 GOTO  970
940 LET S2=-INT(RND(1)*S)
950 PRINT "HA! HA! YOU LOST "; :PRINT USING F$;-S2; :PRINT "."
960 GOTO 990
970 LET S2=INT((RND(1)+RND(1))*S)
980 PRINT "YOU WON "; :PRINT USING F$;S2; :PRINT "."
990 LET M=M+S2
1000 GOTO 590
1010 PRINT "YOU ARE OFFERED A COIN SUPPOSEDLY WORTH $100,000."
1020 PRINT "DO YOU BUY IT";
1030 INPUT Z$
1035 Z$=LEFT$(Z$,1)
1040 PRINT
1050 LET V7=INT(RND(1)*200000!)+1
1060 IF Z$<>"Y" GOTO  1080
1070 LET M=M-100000!+V7
1080 PRINT "THE VALUE OF THE COIN IS "; :PRINT USING F$;V7; :PRINT "."
1090 GOTO 590
1100 PRINT "YOU ARE SERIOUSLY SICK.  (COULDN'T TELL, COULD YOU?)"
1110 PRINT "YOU HAVE ";
1120 ON (INT(RND(1)*3)+1) GOTO  1150, 1170
1130 PRINT "THE ASIO-DISPEPSIA REGIONALY HYPNOTIC FLU! (OH!)."
1140 GOTO 1180
1150 PRINT "COMPUTERITIS."
1160 GOTO 1180
1170 PRINT "INFECTIOUS FATALY REOCCURING CHRONIC BAD BREATH."
1180 LET U=INT(RND(1)*1000)+500
1190 LET M=M-U
1200 PRINT "HEALTH EXPENSES COST YOU "; :PRINT USING F$;U; :PRINT "."
1210 GOTO 590
1220 LET F=INT(RND(1)*100000!)
1230 LET C8=INT(F/2)-INT(RND(1)*(F/2))
1240 PRINT "YOUR GRANDFATHER GROVERS JUST DIED. (OH!) HE LEFT"
1250 PRINT "YOU "; :PRINT USING F$;F; :PRINT ", BUT FUNERAL EXPENSES ARE "; :
     PRINT USING F$;C8; :PRINT "."
1260 LET M=M-C8+F
1270 GOTO 590
1280 IF E=0 GOTO  890
1290 PRINT "NEWS FROM YOUR BOSS:"
1300 ON (INT(RND(1)*3)+1) GOTO  1350, 1390
1310 LET L=INT(RND(1)*3000)+1
1320 LET E=E-L
1330 PRINT "YOU GOT A "; :PRINT USING F$;L; :
     PRINT " DECREASE IN PAY. YOU NOW EARN "; :PRINT USING F$;E; :PRINT "."
1340 GOTO 590
1350 PRINT "YOU'RE FIRED! (HA!)"
1360 LET E=0
1370 LET C=INT(C/4)
1380 GOTO 590
1390 LET R6=INT(RND(1)*5000)+1
1400 LET E=E+R6
1410 PRINT "YOU GOT A RAISE OF "; :PRINT USING F$;R6; :
     PRINT ". YOU NOW EARN "; :PRINT USING F$;E; :PRINT "."
1420 GOTO 590
1430 PRINT "THE DOCTOR SAYS YOU NEED A VACATION.  DO YOU GO";
1440 INPUT Z$
1445 Z$=LEFT$(Z$,1)
1450 PRINT
1460 LET V=INT(RND(1)*2000)+1000
1470 IF Z$="N" GOTO 1500
1480 PRINT "GOOD, THE VACATION COSTS "; :PRINT USING F$;V; :PRINT "."
1490 GOTO 1510
1500 PRINT "YOU JUST HAD A NERVOUS BREAKDOWN. MEDICAL COSTS "; :
     PRINT USING F$;-V; :PRINT "."
1510 LET M=M-V
1520 GOTO 590
1530 FOR I=1 TO 4
1540   LET S(I)=INT((INT(RND(1)*100)+100+2*S(I))/3)
1550 NEXT I
1560 PRINT "#             STOCK NAME          PRICE   SHARES OWNED"
1562 PRINT "--            ----------          -----   ------------"
1570 PRINT "1 IBM (INCREDIBLY BAD MACHINES) ";S(1);"        ";S(5)
1580 PRINT "2 USS (USELESS & STINKY STEEL)  ";S(2);"        ";S(6)
1590 PRINT "3 NCR (NO CASH RETURN)          ";S(3);"        ";S(7)
1600 PRINT "4 TWA (TOTAL WRECK AIRLINES)    ";S(4);"        ";S(8)
1602 PRINT
1610 IF S(9)=1 GOTO 2410
1620 PRINT "DO YOU BUY, SELL ($100 FEE), OR NOT (B,S, OR N)";
1630 INPUT Z$
1635 Z$=LEFT$(Z$,1)
1640 PRINT
1650 IF Z$="S" GOTO 1740
1660 IF Z$="N" GOTO 1810
1670 PRINT "STOCK # AND QUANTITY";
1680 INPUT S3,S(0)
1690 PRINT
1700 LET S(4+S3)=S(4+S3)+S(0)
1710 LET O=-2
1720 LET M=M-S(S3)*S(0)-100
1730 GOTO 1620
1740 PRINT "STOCK # AND QUANTITY";
1750 INPUT S2,S5
1760 IF RND(1)<.5 GOTO  1880
1770 IF S5>S(4+S2) GOTO 1740
1780 LET S(4+S2)=S(4+S2)-S5
1790 LET M=M+S(S2)*S5-100
1800 GOTO 1620
1810 LET S1=S(5)+S(6)+S(7)+S(8)
1820 IF S1>0 GOTO 610
1830 LET O=-1
1840 GOTO 610
1850 PRINT "NEWS FLASH!!! ";
1860 PRINT "A TORNADO HAS JUST HIT THE HOME OF ";A$;"."
1870 GOTO 1890
1880 PRINT "AN AIRPLANE HAS JUST CRASHED INTO THE HOME OF ";A$;"."
1890 LET D8=INT(RND(1)*50000!)+1
1900 LET M=M-D8
1910 PRINT "DAMAGES HAVE BEEN ESTIMATED AT "; :PRINT USING F$;D8; :PRINT "."
1920 GOTO 590
1930 PRINT "OH! YOU JUST GOT ";
1940 IF Y-1980<55 GOTO  2000
1950 IF RND(1)>.4 GOTO  1980
1960 PRINT "CANCER";
1970 GOTO 2010
1980 PRINT "A HEART ATTACK";
1990 GOTO 2010
2000 PRINT "LEUKEMIA";
2010 LET M2=INT(RND(1)*5000)+1000
2020 LET M=M-M2
2030 PRINT ".  MEDICAL BILLS ARE "; :PRINT USING F$;M2; :PRINT "."
2040 IF RND(1)<.5 GOTO  470
2050 GOTO 590
2060 PRINT "YOU JUST HAD A CAR ACCIDENT!  MEDICAL COSTS"
2070 LET M3=INT(RND(1)*3000)+1000
2080 LET Q7=INT(RND(1)*5000)+100
2090 PRINT "ARE "; :PRINT USING F$;M3; :PRINT ". REPAIRS COST "; :
     PRINT USING F$;Q7; :PRINT "."
2100 LET M=M-M3-Q7
2110 GOTO 590
2120 IF E=0 GOTO  1010
2130 LET E2=10000+INT(RND(1)*5000)
2140 PRINT "YOU ARE OFFERED ANOTHER JOB FOR "; :
     PRINT USING F$;E2; :PRINT " A YEAR."
2150 PRINT "WOULD YOU LIKE TO MOONLIGHT";
2160 INPUT Z$
2170 PRINT
2180 IF LEFT$(Z$,1)="N" THEN 590
2190 ON INT(RND(1)*3) GOTO  1350, 2220
2200 LET E=E+E2
2210 GOTO 590
2220 PRINT "FROM OVERWORK YOU GET ";
2230 GOTO 1980
2240 LET R2=INT(RND(1)*10000)+5000
2250 LET M=M-R2
2260 PRINT "YOUR HOME HAS BEEN ROBBED OF GOODS WORTH "; :
     PRINT USING F$;R2; :PRINT "."
2270 GOTO 590
2280 IF O=-1 GOTO 1430
2290 IF RND(1)>.7 GOTO  1430
2300 LET B4=INT(RND(1)*4)
2310 PRINT "STOCK MARKET CRASH!!! EACH OF YOUR";S1;"SHARES OF"
2320 PRINT "STOCK IS WORTH "; :PRINT USING F$;B4; :
     PRINT ". YOU MUST SELL ALL OF THEM"
2330 PRINT "FOR A TOTAL OF "; :PRINT USING F$;S1*B4; :PRINT "."
2340 LET M=M+S1*B4
2350 LET O=-1
2360 GOTO 590
2370 PRINT "YOU HAD "; :PRINT USING F$;M; :PRINT "."
2380 IF O=-1 GOTO 2430
2390 LET S(9)=1
2400 GOTO 1530
2410 LET M=M+S(1)*S(5)+S(2)*S(6)+S(3)*S(7)+S(4)*S(8)
2420 PRINT "WITH STOCK VALUE YOU HAVE "; :PRINT USING F$;M; :PRINT "."
2430 IF M<0 GOTO  2480
2440 IF M<500000! GOTO 2510
2450 IF M<1E+06 GOTO 2530
2460 PRINT A$;" WON!!  YOU ARE A MILLIONAIRE!!"
2470 GOTO 2540
2480 PRINT "YOU LOUSY #$%&'*!!! NOW YOUR POOR FAMILY HAS TO PAY"
2490 PRINT "OFF YOUR DEBTS.........................  "
2500 GOTO 2540
2510 PRINT "NOT BAD, ";A$;"."
2520 GOTO 2540
2530 PRINT "CLOSE, ";A$;".  MAYBE NEXT LIFE."
2540 PRINT "THANKS FOR PLAYING 'MILLIONAIRE', ";A$;"!!!!"
2550 END
```

Minotaur (미노타우로스)





3층으로 나뉘어진 동굴 탐험. 동굴 안에는 고압 전류가 흐르는 10개의 기둥이 서 있다. 이 기둥에 닿으면 마지막. 당신은 소멸하고 만다. 게다가 동굴 안에는 여기저기에 함정이 있다. 여기에 빠지면 당신은 아래층으로 떨어져 버린다. 가장 위층이 레벨 3인데, 여기서 함정에 빠지면 레벨 2로 떨어지는 것이다. 그리고 가장 아래인 레벨 1에 있을 때 함정에 빠지면……, 밑은 바닥 없는 수렁, 게임은 끝나게 된다.

동굴 안에는 미노타우로스(그리스 신화에 나오는, 사람의 몸에 소의 머리를 가진 괴물)가 있다. 당신이 창으로 미노타우로스를 공격하면, 상처 입은 미노타우로스가 당신을 공격해 온다. 또, 아직 아무런 공격도 하지 않았는데, 갑자기 미노타우로스가 공격해 오는 수도 있다. 미노타우로스를 해치우는 비결은, 언제나 그의 측면에 서서 창 던질 준비를 하는 것이다. 미노타우로스는 직진밖에 못하기 때문이다. 당신은 동굴 안을 자유롭게 움직일 수 있는데, 동굴은 가로 세로 각각 −10부터 10까지의 폭밖에 되지 않으므로, 그 밖으로 나가면 아무것도 없는 공간으로 내팽개쳐져 게임이 끝나게 된다. 미노타우로스를 죽이면 당신의 승리. 하지만 많은 함정이나 위험이 도사리고 있으니, 각오를 단단히 해야 할 것이다. 그럼, 여러분의 승리를 기원한다.

This program was conceived and written by Pete Klausler.

```
RUN
                              MINOTAUR
               CREATIVE COMPUTING, MORRISTOWN, NEW JERSEY


DO YOU WANT TO BE THE MINOTAUR CHAMPION? YES
YOU MUST BEAT A SCORE OF 20.

******************************** MINOTAUR ********************************

DO YOU NEED INSTRUCTIONS? YES 설명이 필요합니까?

THE OBJECT OF THE GAME IS TO KILL THE MINOTAUR 미노타우로스를 죽이는 것이 이 게임의
                                               목적입니다.
********************************  CAVERN  ********************************

           THE CAVERN OF THE MINOTAUR IS IN THREE  동굴은 3레벨로 나뉘어, 각 레
          LEVELS.  EACH LEVEL IS A COORDINATE PLANE 벨의 가로와 세로가 각각 −10
          OUTSIDE OF THE LEVELS THERE IS NOTHING BUT 부터 10까지의 폭입니다.
          VACUUM.  THE PLANES STRETCH OUT 10 ON EACH AXIS
          FROM THE ORIGIN.

******************************** HAZARDS  ********************************

                              BARRIERS

          INSIDE THE CAVERN ARE 10 ELECTRIFIED
          PILLARS STRETCHING THROUGH THE THREE
          LEVELS. THEY WILL DESTROY ANYTHING THAT
          TOUCHES THEM!!

                              TRAPDOORS

          TRAPDOORS WILL APPEAR OUT OF NOWHERE
          AND DROP YOU DOWN ONE LEVEL. IF YOU WERE
          ON LEVEL ONE, YOU LOSE!!

                         CHARGING  MINOTAUR

          THE MINOTAUR WILL CHARGE IF YOU
          WOUND HIM WITH YOUR SPEAR.  ALSO, HE
          MAY CHARGE FOR NO REASON AT ALL!!!!


               HERE ARE YOUR CONTROL FUNCTIONS 이동을 위한 컨트롤 넘버.
                    1) MOVING EAST
                    2) MOVING WEST
                    3) MOVING NORTH
                    4) MOVING SOUTH
                    5) MOVING UP A LEVEL
                    6) MOVING DOWN A LEVEL
                    7) THROWING YOUR SPEAR 창을 던진다.
                    8) GETTING A MAP 지도를 본다.

******************************  HAVE FUN  ********************************
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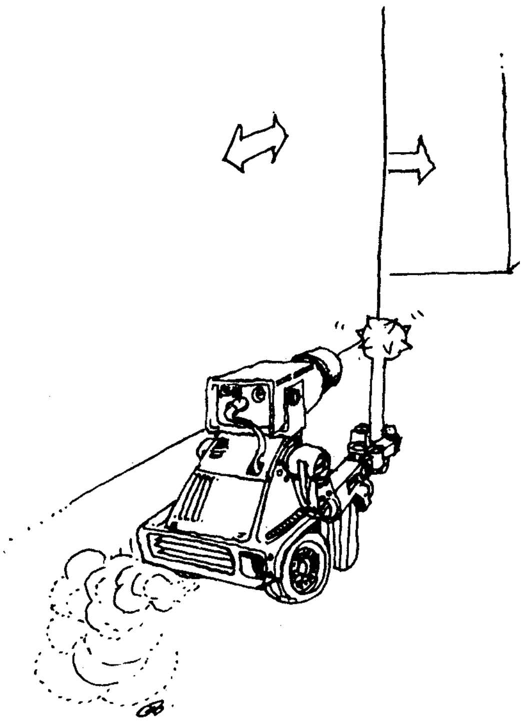

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I WILL NOW SET THE BARRIERS. 기둥을 설치합니다.
BARRIER # 1 :(-7 , 5 ).
BARRIER # 2 :( 1 ,-3 ).
BARRIER # 3 :( 4 ,-1 ).
BARRIER # 4 :(-7 , 2 ).
BARRIER # 5 :( 0 , 3 ).
BARRIER # 6 :(-4 ,-6 ).
BARRIER # 7 :( 3 , 9 ).
BARRIER # 8 :(-7 ,-6 ).
BARRIER # 9 :( 1 ,-7 ).
BARRIER # 10 :(-1 , 4 ).

WHICH LEVEL DO YOU WANT TO START ON? 2  어느 위치에서 시작하겠읍니까?
WHICH POINT? 0,0
HOW FAR DO YOU WANT TO MOVE PER A TURN? 4   한 번에 얼만큼 움직이겠읍니까?

TURN 1 .  MINOTAUR IS AT ( 10 , 10 ), ON L.  1 미노타우로스는 레벨 1 (10, 10)
YOUR CONTROL? 6                                 에 있읍니다.
YOU ARE AT ( 0 , 0 ), ON LEVEL  1 .

THE MINOTAUR IS CHARGING. 미노타우로스가 습격해 옵니다.
LEVEL 1
( 9 , 10 )
( 8 , 10 )
( 7 , 10 )
( 6 , 10 )
( 5 , 10 )
( 4 , 10 )
( 3 , 10 )
( 2 , 10 )
( 1 , 10 )
( 0 , 10 )
( 0 , 9 )
( 0 , 8 )
( 0 , 7 )
( 0 , 6 )
( 0 , 5 )
( 0 , 4 )
BZZZZZZZZZZZZZZZZZZZZZZOWNT MINOTAUR JUST FRIED HIMSELF 지지자징…….
YOU WIN,  YOU LUCKY SCAB 당신의 승리          그는 기둥에 부딪쳐서 죽었읍니다.
YOU ARE NOW A QUALIFIED CHAMPION!
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WOULD YOU LIKE TO PLAY AGAIN? YES 다시 한 번 하겠읍니까?
I WILL NOW SET THE BARRIERS.
BARRIER # 1 :(-3 , 10 ).
BARRIER # 2 :(-1 , 9 ).
BARRIER # 3 :( 1 , 4 ).
BARRIER # 4 :( 1 , 6 ).
BARRIER # 5 :( 10 ,-1 ).
BARRIER # 6 :(-2 ,-10 ).
BARRIER # 7 :( 3 , 3 ).
BARRIER # 8 :(-7 , 9 ).
BARRIER # 9 :( 6 , 7 ).
BARRIER # 10 :( 5 ,-8 ).

WHICH LEVEL DO YOU WANT TO START ON? 2
WHICH POINT? 0,0
HOW FAR DO YOU WANT TO MOVE PER A TURN? 5

TURN 1 .  MINOTAUR IS AT (-4 , 8 ), ON L.  3 .
YOUR CONTROL? 5
YOU ARE AT ( 0 , 0 ), ON LEVEL  3 .

TURN 2 .  MINOTAUR IS AT (-3 , 8 ), ON L.  3 .
YOUR CONTROL? 1
YOU ARE AT ( 5 , 0 ), ON LEVEL  3 .
YAAAAAAAAAAAAAAH TRAPDOOR, YOU FELL DOWN ONE LEVEL 함정, 당신은
                                                  한 레벨 떨어졌읍니다.
TURN 3 .  MINOTAUR IS AT (-2 , 8 ), ON L.  3 .
YOUR CONTROL? 5
YOU ARE AT ( 5 , 0 ), ON LEVEL  3 .

TURN 4 .  MINOTAUR IS AT (-2 , 8 ), ON L.  2 .
YOUR CONTROL? 8  지도를 봅니다.
WHAT LEVEL? 2
.......B..X..........
...B.....BX..........
........M.X..........
..........X.....B....
..........XB.........
..........X..........
..........XB.........
..........X..B.......
..........X..........
..........X..........
XXXXXXXXXXOXXXXXXXXXX
..........X.........B
..........X..........
..........X..........
..........X..........
..........X..........
..........X..........
..........X..........
..........X....B.....
..........X..........
........B.X..........

LEVEL: 2
                           KEY
                          Y=YOU
                          M=MINOTAUR
                          S=SPEAR
                          B=BARRIER
                          O=ORIGIN
                          X=AXIS

TURN 5 .  MINOTAUR IS AT (-2 , 8 ), ON L.  2 .
YOUR CONTROL? 6
YOU ARE AT ( 5 , 0 ), ON LEVEL  2 .

THE MINOTAUR IS CHARGING. 다시 습격!
BZZZZZZZZZZZZZZZZZZZZZZOWNT MINOTAUR JUST FRIED HIMSELF 이번에도
YOU WIN,  YOU LUCKY SCAB 당신이 이겼읍니다.              미노타우로스의
YOU ARE NOW A QUALIFIED CHAMPION!                         죽음입니다.
WOULD YOU LIKE TO PLAY AGAIN? NO  다시 한 번 하겠읍니까?
Ok
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```
100 PRINT TAB( 32)"MINOTAUR"
120 PRINT TAB( 15)"CREATIVE COMPUTING, MORRISTOWN, NEW JERSEY"
130 PRINT:PRINT
160 L1=INT(RND(1)*3)+1
170 X1=INT(RND(1)*(-21))+11
180 Y1=INT(RND(1)*(-21))+11
190 PRINT
195 DIM B(15),C(15)
200 GOSUB 1350
210 REM INSTRUCTIONS
220 GOSUB 1660
230 REM BARRIERS
240 GOSUB 2330
250 REM PLACE PLAYER
260 GOSUB 2420
270 REM START GAME
280 REM SPEAR
290 IF X2=S1 AND Y2=S2 AND L2=S3 AND T>1 THEN 3690
300 REM  IS HE EATEN?
310 IF X1=X2 AND Y2=1 AND L1=L2 THEN 3670
320 REM CHARGING
330 IF RND(1)<.1 THEN 2850
340 REM TURN #
350 T=T+1
360 PRINT"TURN";T;CHR$(8);".  MINOTAUR IS AT (";X1;",";Y1;"), ON LEVEL";L1;
   CHR$(8);"."
370 PRINT "YOUR CONTROL";
380 INPUT Z
390 ON Z GOTO 400,430,450,480,500,530,550,3270
400 X2=X2+F
410 IF ABS(X2)>10 THEN 1160
420 GOTO 1180
430 X2=X2-F
440 GOTO 410
450 Y2=Y2+F
460 IF ABS(Y2)>10 THEN 1160
470 GOTO 420
480 Y2=Y2-F
490 GOTO 460
500 L2=L2+1
510 IF L2>3 OR L2<1 THEN 1330
520 GOTO 420
530 L2=L2-1
540 GOTO 510
550 REM  SPEAR-THROWING
560 IF L1<>L2 THEN 1080
570 IF X1<>X2 AND Y1<>Y2 THEN 1100
580 IF X1<>X2 AND ABS(Y1-Y2)>10 THEN 1120
590 IF ABS(X1-X2)>10 THEN 1120
600 IF S9=1 THEN 3720
610 PRINT"IN WHICH DIRECTION WOULD YOU LIKE TO THROW (USE 1,2,3,4)"
620 INPUT H1
630 PRINT"HOW FAR";
640 INPUT H2
650 S5=X2
660 S6=Y2
670 FOR H3=1 TO H2
680 ON H1 GOTO 690,720,740,770
690 S5=S5+1
700 IF ABS(S5)>10 THEN 860
710 GOTO 790
720 S5=S5-1
730 GOTO 700
740 S6=S6-1
750 IF ABS(S6)>10 THEN 860
760 GOTO 790
770 S6=S6-1
780 GOTO 750
790 PRINT"SPEAR IS AT (";S5;",";S6").  "
800 REM TEST FOR BARRIERS
810 FOR A=1 TO 10
820 IF S5=B(A) AND S6=C(A) THEN 850
830 NEXT A
840 GOTO 870
850 PRINT "SMASH SPEAR SPLITERED AGAINST BARRIER #";A;CHR$(8);"."
860 GOTO 1140
870 NEXT H3
880 IF S5<>X1 OR S6<>Y1 THEN 1010
890 X=INT(RND(1)*3)+1
900 ON X GOTO 910,1010,1070
910 PRINT"YOU KILLED THE MINOTAUR IN";T;"TURNS."
920 GOTO 1450
930 PRINT:PRINT"WOULD YOU LIKE TO PLAY AGAIN";
940 INPUT X$
950 IF LEFT$(X$,1)<>"Y" THEN 3760
960 T=0
970 L1=INT(RND(1)*3)+1
980 X1=INT(RND(1)*(-21))+11
990 Y1=INT(RND(1)*(-21))+11
1000 GOTO 230
1010 PRINT"YOU MISSED.  SPEAR IS AT (";S5;",";S6;").  YOU MUST GET IT."
1020 S1=S5
1030 S2=S6
1040 S3=L2
1050 S9=1
1060 GOTO 280
1070 GOSUB 2840
1080 PRINT"YOU ARE NOT ON THE SAME LEVEL.  YOU CANNOT THROW."
1090 GOTO 420
1100 PRINT"YOU ARE NOT ON THE SAME X OR Y LINE.   YOU CANNOT THROW."
1110 GOTO 420
1120 PRINT"YOU ARE NOT WITHIN 10.  YOU CANNOT THROW."
1130 GOTO 420
1140 PRINT"YOU ARE NOW WEAPONLESS.  YOU LOSE, SUCKER!"
1150 GOTO 930
1160 PRINT"YAAAAAAAAAAAAAAAAH YOU FELL OFF THE EDGE!"
1170 GOTO 1150
1180 PRINT"YOU ARE AT (";X2;",";Y2;"), ON LEVEL";L2;CHR$(8);"."
1190 REM TEST FOR BARRIERS
1200 FOR A=1 TO 10
1210 IF X2=B(A) AND Y2=C(A) THEN 1240
1220 NEXT A
1230 GOTO 1260
1240 PRINT"YOU HAVE JUST FRIED YOURSELF ON AN ELECTRIFIED BARRIER."
1250 GOTO 1150
1260 REM TRAPDOORS
1270 X=INT(RND(1)*10)+1
1280 IF X=5 THEN 1300
1290 GOTO 2510
1300 PRINT"YAAAAAAAAAAAAAAAH TRAPDOOR, YOU FELL DOWN ONE LEVEL!"
1310 L2=L2-1
1320 IF L2>0 THEN 1290
1330 PRINT"YOU FELL OUT OF THE CAVERN.  YOU LOSE."
1340 GOTO 1150
1350 PRINT"DO YOU WANT TO BE THE MINOTAUR CHAMPION";
1360 INPUT X9$
1370 IF LEFT$(X9$,1)<>"Y" THEN 1440
1380 C2=20
1390 PRINT"YOU MUST BEAT A SCORE OF 20."
1391 DIM C3$(72)
1419 DIM C4$(72)
1440 RETURN
1450 IF LEFT$(X9$,1)<>"Y" THEN 930
1460 C3=(1/T)*100
1470 IF C3<20 THEN 1630
1480 PRINT"YOU ARE NOW A QUALIFIED CHAMPION!"
1620 GOTO 930
1630 PRINT"SORRY, YOU DID NOT BEAT THE CHAMPION."
1640 PRINT"DO YOU WANT TO PLAY AGAIN";
1650 GOTO 940
1660 REM INSTRUCTIONS
1670 PRINT
1672 FOR V7=1 TO 31
1673 PRINT"*";
1675 NEXT V7
1680 PRINT TAB( 32)"MINOTAUR";
1681 FOR V8=1 TO 31
1682 PRINT TAB( 41)"*";
1683 NEXT V8
1720 PRINT
1730 PRINT
1740 PRINT"DO YOU NEED INSTRUCTIONS";
1760 INPUT X$
1770 IF LEFT$(X$,1)<>"Y" THEN 2320
1780 PRINT CHR$(26)
1800 PRINT "THE OBJECT OF THE GAME IS TO KILL THE MINOTAUR."
1820 PRINT
1825 FOR V9=1 TO 31
1826 PRINT"*";
1827 NEXT V9
1830 PRINT TAB( 33)"CAVERN";
1832 FOR V10=1 TO 31
1833 PRINT TAB( 41)"*";
1835 NEXT V10
1836 PRINT
1837 PRINT
1840 PRINT TAB( 12)"  THE CAVERN OF THE MINOTAUR IS IN THREE"
1850 PRINT TAB( 12)"LEVELS.  EACH LEVEL IS A COORDINATE PLANE."
1860 PRINT TAB( 12)"OUTSIDE OF THE LEVELS THERE IS NOTHING BUT "
1870 PRINT TAB( 12)"VACUUM.  THE PLANES STRETCH OUT 10 ON EACH AXIS"
1880 PRINT TAB( 12)"FROM THE ORIGIN."
1890 PRINT
1910 FOR V11=1 TO 31
1920 PRINT"*";
1930 NEXT V11
1940 PRINT TAB( 32)"HAZARDS";
1945 FOR V12=1 TO 31
1947 PRINT TAB( 41)"*";
1948 NEXT V12
1950 PRINT
1955 PRINT
1960 PRINT TAB( 32)"BARRIERS"
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1965 PRINT
1970 PRINT TAB( 12)"  INSIDE THE CAVERN ARE 10 ELECTRIFIED"
1980 PRINT TAB( 12)"PILLARS STRETCHING THROUGH THE THREE"
1990 PRINT TAB( 12)"LEVELS. THEY WILL DESTROY ANYTHING THAT"
2000 PRINT TAB( 12)"TOUCHES THEM!!"
2010 PRINT PRINT LINE INPUT "ENTER 'RETURN' TO CONTINUE. ";XX$:PRINT CHR$(26)
2020 PRINT TAB( 32)"TRAPDOORS"
2025 PRINT
2030 PRINT TAB( 12)"  TRAPDOORS WILL APPEAR OUT OF NOWHERE"
2040 PRINT TAB( 12)"AND DROP YOU DOWN ONE LEVEL. IF YOU WERE"
2050 PRINT TAB( 12)"ON LEVEL ONE, YOU LOSE!!"
2060 PRINT PRINT
2070 PRINT TAB( 27)"CHARGING MINOTAUR"
2071 PRINT
2080 PRINT TAB( 12)"  THE MINOTAUR WILL CHARGE IF YOU"
2090 PRINT TAB( 12)"WOUND HIM WITH YOUR SPEAR.  ALSO, HE"
2100 PRINT TAB( 12)"MAY CHARGE FOR NO REASON AT ALL!!!!"
2110 PRINT PRINT PRINT
2120 LINE INPUT "ENTER 'RETURN' TO CONTINUE. ";XX$:PRINT CHR$(26)
2130 PRINT TAB( 21)" HERE ARE YOUR CONTROL FUNCTIONS:":PRINT
2140 PRINT TAB( 27)"1) MOVING EAST"
2150 PRINT TAB( 27)"2) MOVING WEST"
2160 PRINT TAB( 27)"3) MOVING NORTH"
2170 PRINT TAB( 27)"4) MOVING SOUTH"
2180 PRINT TAB( 27)"5) MOVING UP A LEVEL"
2190 PRINT TAB( 27)"6) MOVING DOWN A LEVEL"
2200 PRINT TAB( 27)"7) THROWING YOUR SPEAR"
2210 PRINT TAB( 27)"8) GETTING A MAP"
2220 PRINT
2240 FOR V13=1 TO 29
2250 PRINT"*";
2260 NEXT V13
2270 PRINT TAB( 31)"HAVE FUN";
2280 FOR V14=1 TO 30
2290 PRINT TAB( 41)"*";
2300 NEXT V14
2310 PRINT PRINT LINE INPUT "ENTER 'RETURN' TO START THE GAME. ";XX$
2320 RETURN
2330 REM BARRIERS
2340 PRINT CHR$(26) PRINT "I WILL NOW SET THE BARRIERS.":PRINT
2350 FOR A=1 TO 10
2360 B(A)= INT(RND(1)*(-21))+11
2370 C(A)=INT(RND(1)*(-21))+11
2380 PRINT"BARRIER #";A;":(";B(A);",";C(A);CHR$(8);")."
2390 NEXT A
2400 PRINT
2410 RETURN
2420 REM PLACE PLAYER
2430 PRINT"WHICH LEVEL DO YOU WANT TO START ON";
2440 INPUT L2
2450 PRINT"WHICH POINT";
2460 INPUT X2,Y2
2470 PRINT"HOW FAR DO YOU WANT TO MOVE PER TURN";
2480 INPUT F
2490 PRINT
2500 RETURN
2510 REM MOVE MINOTAUR
2520 X4=X1
2530 Y4=Y1
2540 L4=L1
2550 X3=INT(RND(1)*6)+1
2560 ON X3 GOTO 2570,2620,2640,2690,2710,2760
2570 X1=X1+1
2580 IF ABS(X1)>10 THEN 2600
2590 GOTO 2780
2600 X1=X4
2610 GOTO 2550
2620 X1=X1-1
2630 GOTO 2580
2640 Y1=Y1+1
2650 IF ABS(Y1)>10 THEN 2670
2660 GOTO 2780
2670 Y1=Y4
2680 GOTO 2550
2690 IF X1=B(A) AND Y1=C(A) THEN 2550
2700 GOTO 2650
2710 L1=L1+1
2720 IF L1>3 OR L1<1 THEN 2740
2730 GOTO 2780
2740 L1=L4
2750 GOTO 2550
2760 L1=L1-1
2770 GOTO 2720
2780 FOR A=1 TO 10
2790 IF X1=B(A) AND Y1=C(A) THEN 2550
2800 NEXT A
2810 PRINT
2820 GOTO 280
2830 PRINT
2840 PRINT"YOU WOUNDED THE MINOTAUR"
2850 PRINT"THE MINOTAUR IS CHARGING "
2860 IF X1>X2 THEN 2890
2870 X3=1
2880 GOTO 2910
2890 X3=-1
2900 GOTO 2910
2910 IF Y1>Y2 THEN 2940
2920 Y3=1
2930 GOTO 2960
2940 Y3=-1
2950 GOTO 2960
2960 IF L1>L2 THEN 2990
2970 L3=1
2980 GOTO 3000
2990 L3=-1
3000 IF L1=L2 THEN 3050
3010 L1=L1+L3
3020 PRINT"LEVEL";L1;""
3030 GOTO 3000
3040 REM HI THERE
3050 IF X1=X2 THEN 3100
3060 X1=X1+X3
3070 GOSUB 3140
3080 PRINT"(";X1;",";Y1;")"
3090 GOTO 3050
3100 IF Y1=Y2 THEN 3210
3110 Y1=Y1+Y3
3120 GOSUB 3140
3130 GOTO 3080
3140 FOR P=1 TO 10
3150 IF B(P)=X1 AND C(P)=Y1 THEN 3180
3160 NEXT P
3170 RETURN
3180 PRINT"BZZZZZZZZZZZZZZZZZZZZZ THE MINOTAUR JUST FRIED HIMSELF!"
3190 PRINT"YOU WIN, YOU LUCKY SCAB!"
3200 GOTO 1450
3210 PRINT"BITE "
3220 PRINT"CHEW"
3230 PRINT"CHOMP"
3240 PRINT"GULP"
3250 PRINT"YOU LOSE, SUCKER!"
3260 GOTO 930
3270 PRINT"WHAT LEVEL";
3280 INPUT L4
3290 FOR Y4=10 TO -10 STEP -1
3300 FOR X4=-10 TO 10
3310 IF X4=X2 AND Y4=Y2 AND L4=L2 THEN 3410
3320 IF X4=X1 AND Y4=Y1 AND L4=L1 THEN 3430
3330 IF L4=S1 AND Y4=S2 AND L4=S3 THEN 3450
3340 FOR A=1 TO 10
3350 IF B(A)=X4 AND C(A)=Y4 THEN 3480
3360 NEXT A
3370 IF X4=0 AND Y4=0 THEN 3500
3380 IF X4=0 OR Y4=0 THEN 3520
3390 PRINT".";
3400 GOTO 3530
3410 PRINT"Y";
3420 GOTO 3400
3430 PRINT"M";
3440 GOTO 3400
3450 IF S9=0 THEN 3340
3460 PRINT"S";
3470 GOTO 3400
3480 PRINT"B";
3490 GOTO 3400
3500 PRINT"0";
3510 GOTO 3400
3520 PRINT"X";
3530 NEXT X4
3540 PRINT
3550 NEXT Y4
3560 PRINT
3570 PRINT"LEVEL:";L4
3580 PRINT TAB( 34)"KEY"
3581 PRINT TAB( 34)"---"
3590 PRINT TAB( 31)"Y = YOU"
3600 PRINT TAB( 31)"M = MINOTAUR"
3610 PRINT TAB( 31)"S = SPEAR"
3620 PRINT TAB( 31)"B = BARRIER"
3630 PRINT TAB( 31)"0 = ORIGIN"
3640 PRINT TAB( 31)"X = AXIS"
3650 PRINT
3660 GOTO 2510
3670 PRINT"MINOTAUR MOVED TO YOUR SPOT; HE SAID YOU TASTED GREAT!!"
3680 GOTO 930
3690 PRINT"YOU HAVE YOUR SPEAR"
3700 S9=0
3710 GOTO 300
3720 PRINT"HOW CAN YOU THROW YOUR SPEAR IF YOU DON'T HAVE ONE?"
3730 PRINT"SPEAR IS AT(";S1;",";S2;") ON LEVEL";S3;CHR$(8);"."
3740 GOTO 420
3750 STOP
3760 END
```

Motorcycle Jump

(오토바이 점프)

당신은 죽어도 오토바이가 좋다는 오토바이광. 중력(重力)과 관성을 이용하여, 몇 개의 장애벽을 뛰어넘는 것이 이 게임의 목적이다. 점프는, 경사로의 각도와 도움닫기 거리에 의해 결정된다. 뛰어넘는 거리가 길어질수록 실패했을 때의 상처가 커지니, 주의하기 바란다. 성공하는 것은 장애벽을 꼭 맞게 넘었을 경우뿐이다. 성공 확률은 20%로 해 놓았는데, 560행을 변경하여 어렵게도 할 수 있고, 더 쉽게도 할 수 있다.

This program was written by Charles Aylworth and originally appeared in *Creative Computing*, Jul/Aug 1978.

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RUN

                    MOTORCYCLE JUMP
                   CREATIVE COMPUTING
                 MORRISTOWN, NEW JERSEY


WE'RE AT THE SCENE OF THE BIG MOTORCYCLE JUMP!
HOW MANY BUSSES WILL YOU TRY TO JUMP? 5  장애벽을 몇 개 뛰어넘겠읍니까?
 5  BUSSES!  THAT'S  75  FEET!
WHAT RAMP ANGLE WILL YOU USE? 90  경사로의 각도는?
 90  DEGREES?  THAT'S IMPOSSIBLE.  COME ON NOW,
WHAT RAMP ANGLE WILL YOU USE? 22
HOW FAST WILL YOU LEAVE THE RAMP? 0 얼마만큼 달린 뒤에 점프할 것입니까?
      GOOD LUCK!
A PRACTICE JUMP! 연습 점프!
OK, THIS TIME HOW FAST WILL YOU LEAVE THE RAMP? 54
      GOOD LUCK!
THERE HE GOES!!!!  출발합니다.
******************HE JUMPED TOO FAR! 너무 멀었읍니다.
HE MISSED THE RAMP.
I THINK HE'S HURT......
WELL, KILLER, THE DOCTOR SAYS YOU BROKE YOUR:
L.LEG
RIBS
BIKE
NECK
WANT TO JUMP AGAIN? YES


HOW MANY BUSSES WILL YOU TRY TO JUMP? 5
 5  BUSSES!  THAT'S  75  FEET!
WHAT RAMP ANGLE WILL YOU USE? 22
HOW FAST WILL YOU LEAVE THE RAMP? 46
      GOOD LUCK!
THERE HE GOES!!!!
*************HE'S SHORT OF THE RAMP .....너무 짧았읍니다.
I THINK HE'S HURT......
WELL, KILLER, THE DOCTOR SAYS YOU BROKE YOUR:
R.ARM
PRIDE
L.ARM
BACK
BUTT
WANT TO JUMP AGAIN? YES


HOW MANY BUSSES WILL YOU TRY TO JUMP? 5
 5  BUSSES!  THAT'S  75  FEET!
WHAT RAMP ANGLE WILL YOU USE? 22
HOW FAST WILL YOU LEAVE THE RAMP? 47
      GOOD LUCK!
THERE HE GOES!!!!
***************HE MADE IT !  GREAT JUMP, KILLER! 대성공!
WANT TO JUMP AGAIN? NO
YOU MADE IT  1  OUT OF  3  ATTEMPTS. 3회 시도해서 1회 성공.
BE CAREFUL, NOW.
OK
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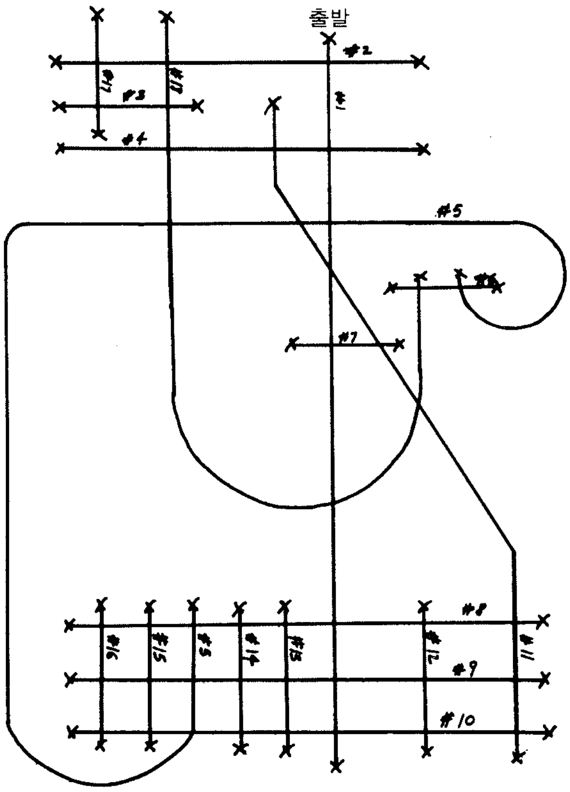
```
10 PRINT CHR$(26);TAB( 21);"MOTORCYCLE JUMP"
20 PRINT TAB( 20);"CREATIVE COMPUTING"
30 PRINT TAB( 18);"MORRISTOWN, NEW JERSEY"
40 PRINT:PRINT:PRINT
50 DIM I2(14),I$(84)
90 I$="R.ARM L.ARM R.LEG L.LEG BACK  NECK  SKULL RIBS  KNEE  BUTT  "
100 I$=I$+"FACE  PELVISPRIDE BIKE  "
110 T=.1
130 T2=0
140 T3=0
150 PRINT "WE'RE AT THE SCENE OF THE BIG MOTORCYCLE JUMP!"
160 INPUT "HOW MANY BUSSES WILL YOU TRY TO JUMP";N
170 J=N*15
180 PRINT N;"BUSSES!  THAT'S";J;"FEET!"
190 INPUT "WHAT RAMP ANGLE WILL YOU USE";A2
200 IF A2<90 AND A2>0 THEN 230
210 PRINT A2;"DEGREES?  THAT'S IMPOSSIBLE.  COME ON NOW, "
220 GOTO 190
230 A=A2*.01745
240 INPUT "HOW FAST WILL YOU LEAVE THE RAMP";S
250 PRINT:PRINT "*** G O O D  L U C K ***":PRINT
260 IF S>0 THEN 300
270 PRINT "A PRACTICE JUMP!"
280 PRINT "OK, THIS TIME ";
290 GOTO 240
300 H=6
310 D=0
320 G=6
330 R2=0
340 S2=0
350 S=S*1.5
360 PRINT "THERE HE GOES!!!!"
380 S=S-S2
390 F=S*T
400 D2=F*COS(A)
410 R=F*SIN(A)
420 R2=R2+(32*T)
430 R3=R2*T
440 H=H+R-R3
450 D=D+D2
460 PRINT "*";
480 S2=(S/120)*32*T
490 IF D>=J THEN G=G-R
510 IF G<=0 THEN G=0
520 IF H>G THEN 380
530 IF D<J THEN 600
540 IF D>J+20 THEN 640
550 L=((D-J)/30)+RND(1)
560 IF L>.8 THEN 650
570 PRINT "HE MADE IT!  GREAT JUMP, KILLER!"
580 T2=T2+1
590 GOTO 920
600 PRINT "HE'S SHORT OF THE RAMP ....."
620 L2=INT((((J-D)/5)*2)+(RND(1)*5)+.5)
630 GOTO 670
640 PRINT "HE JUMPED TOO FAR!"
650 PRINT "HE MISSED THE RAMP."
660 L2=INT(((D+20-J)/20)+(RND(1)*5))
670 PRINT "I THINK HE'S HURT......"
680 FOR K=1 TO 14
690 I2(K)=K
700 NEXT K
710 K2=14
720 IF L2>14 THEN L2=14
730 IF L2<=0 THEN L2=1
760 FOR K=1 TO L2
770 V=INT(RND(1)*1000)
780 V=(V-(INT(V/K2)*K2))+1
790 H2=I2(V)
800 I2(V)=I2(K2)
810 I2(K2)=H2
820 K2=K2-1
830 NEXT K
840 PRINT "WELL, KILLER, THE DOCTOR SAYS YOU BROKE YOUR:"
860 FOR K=(15-L2) TO 14
880 P=(6*I2(K))-5
890 A$=MID$(I$,P,6)
900 PRINT A$
910 NEXT K
920 T3=T3+1
930 PRINT:INPUT "WANT TO JUMP AGAIN";A$
940 IF LEFT$(A$,1)="Y" THEN PRINT:PRINT:GOTO 160
950 PRINT "YOU MADE IT";T2;"OUT OF";T3;"ATTEMPTS."
960 PRINT "BE CAREFUL, NOW."
970 END
```

Nomad
(이사하기를 좋아하는 할머니)

당신의 할머니는 멋진 숙녀. 그런데 그녀는 이사하기를 아주 좋아해서 자주 이사를 한다. 그리고 새 집으로 이사하면 언제나 당신에게 새 집을 방문하도록 전보를 친다. 전보를 받은 당신은, Garbonzo 시(市)에 있는 할머니 집을 자동차를 타고 찾아 가는데, 교통 사고나 속도 위반을 하지 않고 무사히 도착해야 한다. 시의 약도는 아래에 실었다. 어쨌든, 먼저 게임을 시작해 보자.

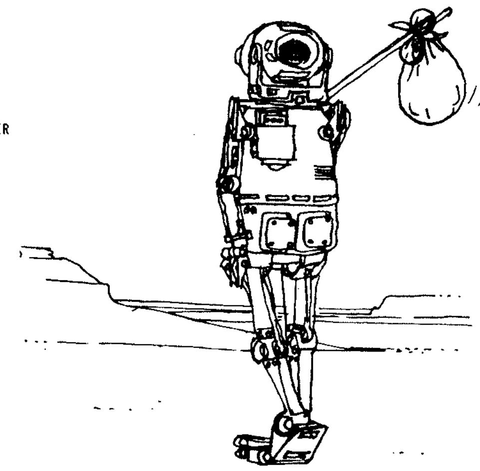
Nomad was written by Steve Trapp and first appeared in *Creative Computing*, Sep/Oct 1977.




```
RUN
                     NOMAD
               CREATIVE COMPUTING
             MORRISTOWN, NEW JERSEY
RULES? YES 규칙을 알려드릴까요?

GRAMMA NOMAD IS A NICE OLD LADY WHO HAS NOT QUITE
MADE UP HER MIND WHERE SHE WANTS TO LIVE.
SHE HAS NARROWED IT DOWN TO SOMEWHERE IN GARBONZO CITY
AND ON A STREET CORNER.

AT THE BEGINNING, THE MAILMAN GIVES YOU A TELEGRAM WRITTEN
BY GRAMMA TELLING YOU WHERE SHE LIVES.  전보를
(I WILL READ IT TO YOU).                받고 출발합니다.

YOU GET INTO YOUR CAR IT LRAC NILKNARF NAMGREB LODGE.
FROM THEEEEERE YOU GO TO GRAMMAS HOUSE.

YOU TRY TO GET THERE WITHOUT:
CRASHUPS                          충돌, 속도 위반, 타이어 빵꾸,
TICKETS                           가스 부족, 막힌 길 등이
FLAT TIRES                        없어야 합니다.
RUNNING OUT OF GAS
DEAD ENDS

THERE IS AN 8-MAN POLICE FORCE ENFORCING THE LAWS
OF GARBONZO CITY.  경찰이 규칙을 지키도록 합니다.

THERE ARE 2-DRUNKS ON THE STREETS OF GARBONZO 음주 운전자도
CITY.                                         있읍니다.

IF A POLICEMAN CATCHES A DRUNK, HE HAS TO
TESTIFY IN COURT
(WHICH TAKES THE REST OF THE GAME)

IF A DRUNK DRIVER HITS YOU, YOU LOSE. 만일 음주 운전자의 차와 충돌해
                                      당신은 실패.
AT EACH JUNCTION, I WILL TELL YOU:
THE DIRECTION YOU ARE GOING 교차점이다. 당신의 도로,
THE ROAD YOU ARE ON         통과 중의 도로, 교차점을 알려 줍니다.
THE ROAD CROSSING

I WILL ASK YOU:
THE WAY YOU WANT TO TURN (IE LEFT) 당신이 돌려는 방향(예를 들어 왼편),
SPEED (IN MPH)                     속도를 묻습니다.

AN OVERPASS IS NOT A JUNCTION. SO IT IS
MERELY SKIPPED OVER.  IT IS UNANNOUNCED.

*THAT IS ALL*

WHAT IS YOUR NAME? STEVE 당신의 이름은?

*GOOD LUCK* 행운을 빕니다.

DEAR STEVE,                          스티브에게,
HOW ARE YOU?  I LIVE AT THE CORNER   잘 있느냐? 나는 15번가(街)와
OF ROAD # 15  & # 9 !!!              9번가(街)의 모퉁이에 살고 있다.
COME ON OVER.                        오너라.
                    LOVE,
                    GRAMMA
((TELEGRAMMA CORP. TELEGRAM CO.))    (할머니의 전보)
```

1 번가와 2 번가의 교차점을 남쪽으로 향하고 있습니다.

```
GOING SOUTH ON ROAD # 1
JUNCTION: ROAD # 1  & # 2
FORWARD, LEFT, RIGHT OR U-TURN? F 방향은?
SPEED? 40 속도는?
SMOOSH...BUS FLATTENED YOUR CAR.
        버스와 충돌했습니다.
AGAIN? YES 다시 한 번 하겠습니까?
WHAT IS YOUR NAME? STEVE

*GOOD LUCK*

DEAR STEVE,
HOW ARE YOU?  I LIVE AT THE CORNER
OF ROAD # 1  & # 8 !!!
COME ON OVER.
                    LOVE,
                    GRAMMA
((TELEGRAMMA CORP. TELEGRAM CO.))


GOING SOUTH ON ROAD # 1
JUNCTION: ROAD # 1  & # 2
FORWARD, LEFT, RIGHT OR U-TURN? F
SPEED? 30

GOING SOUTH ON ROAD # 1
JUNCTION: ROAD # 1  & # 4
FORWARD, LEFT, RIGHT OR U-TURN? F
SPEED? 30
POP...BULLDOG ATE YOUR TIRE!
      불독이 타이어를 물었습니다.
AGAIN? YES
WHAT IS YOUR NAME? STEVE

*GOOD LUCK*

DEAR STEVE,
HOW ARE YOU?  I LIVE AT THE CORNER
OF ROAD # 11  & # 4 !!!
COME ON OVER.
                    LOVE,
                    GRAMMA
((TELEGRAMMA CORP. TELEGRAM CO.))


GOING SOUTH ON ROAD # 1
JUNCTION: ROAD # 1  & # 2
FORWARD, LEFT, RIGHT OR U-TURN? R
SPEED? 30

GOING WEST ON ROAD # 2
JUNCTION: ROAD # 2  & # 18
FORWARD, LEFT, RIGHT OR U-TURN? L
SPEED? 56
*SPEEDING* 속도를 너무 내었습니다.
NOT CAUGHT 그렇지만 잡히지 않았습니다.

GOING SOUTH ON ROAD # 18
JUNCTION: ROAD # 18  & # 3
FORWARD, LEFT, RIGHT OR U-TURN? F
SPEED? 45

GOING SOUTH ON ROAD # 18
JUNCTION: ROAD # 18  & # 4
FORWARD, LEFT, RIGHT OR U-TURN? L
*SPEED*   I DARE YOU   *SPEED*   I DARE YOU
SPEED? 100
*SPEEDING*
NOT CAUGHT

GOING EAST ON ROAD # 4
YOU MADE IT TO GRAMMAS HOUSE!!!!!!! !!   할머니 댁에 무사히 도착!

AGAIN? NO

*SEE YOU*
Ok
```



```
10 PRINT TAB( 26);"NOMAD"
20 PRINT TAB( 20);"CREATIVE COMPUTING"
30 PRINT TAB( 18);"MORRISTOWN, NEW JERSEY"
1160 DIM K$(30),D(2,2),R(30,30),E(30,30),P(8,2),C(30)
1170 DIM W(30)
1180 DIM N$(30)
1190 REM GOSUB RULES
1200 GOSUB 3340
1210 REM RANDOM NUMBERS
1220 DEF FN A(X)=INT(RND(1)*X)+1
1230 REM # OF ROADS
1240 READ N
1250 FOR R=1 TO N
1260 REM # OF INTERSEC
1270 READ Q
1280 C(R)=ABS(Q)
1290 IF Q<0 THEN 1320
1300 W(R)=1
1310 GOTO 1330
1320 W(R)=-1
1330 REM DIREC, ROAD
1340 FOR J=1 TO C(R)
1350 READ E(R,J),R(R,J)
1360 NEXT J
1370 NEXT R
1380 REM NAME?
1390 PRINT "WHAT IS YOUR NAME";
1400 INPUT N$
1410 REM OPENING STATEMENT
1420 PRINT
1430 PRINT "*** GOOD LUCK ***"
1440 REM GRAMMAS HOUSE
1450 H1=FN A(N)
1460 H2=FN A(C(H1))
1470 REM DRUNK DRIVERS
1490 REM POLICE
1500 FOR A=1 TO 8
1510 P(A,1)=FN A(N)
1520 P(A,2)=FN A(C(P(A,1)))
1530 NEXT A
1540 REM LRAC NILKNARF NAMGREB LODGE
1550 R=1
1560 J=0
1570 I=1
1580 REM GOSUB CHECK
1590 GOSUB 2520
1600 REM GOSUB TELEGRAM
1610 GOSUB 2570
1620 REM ADD INCREMENT
1630 J=J+I
1640 REM NEED REPAIR?
1650 IF FN A(10)=1 THEN 2940
1660 REM DEAD END?
1670 IF J>C(R) OR J=0 THEN 3060
1680 REM DIRECTION
1690 IF I=-1 THEN 1720
1700 D=E(R,J)
1710 GOTO 1730
1720 D=9-E(R,J)
1730 REM ROAD CROSSING
1740 C=R(R,J)
1750 REM SKIP LINE
1760 PRINT
1770 REM GOSUB *DIREC, ROAD ON* PRINT
1780 GOSUB 2680
1790 REM AT GRAMMAS?
1800 IF H1=R AND R(R,J)=R(H1,H2) THEN 2880
1810 IF H1=R(R,J) AND R=R(H1,H2) THEN 2880
1820 REM JUNCTION
1830 PRINT "JUNCTION: ROAD #";R;" & #";C
1840 REM ASK WHAT WAY TO TURN
1850 PRINT "FORWARD, LEFT, RIGHT OR U-TURN";
1860 INPUT I$
1880 IF LEFT$(I$,1)="F" THEN 2080
1890 IF LEFT$(I$,1)="R" THEN 1970
1900 IF LEFT$(I$,1)="L" THEN 1990
1910 IF LEFT$(I$,1)="U" THEN 1950
1920 REM GOOFED
1930 PRINT "*** YOU GOOFED ***"
1940 GOTO 1850
1950 I=1*I
1960 GOTO 2080
1970 I=W(R)*I
1980 GOTO 2000
1990 I=-1*W(R)*I
2000 FOR A=1 TO C(C)
2010 IF R(C,A)=R THEN 2040
2020 NEXT A
2030 GOTO 4210
2040 R=C
2050 J=A
2060 REM DARE?
2070 IF FN A(4)=1 THEN 2360
2080 REM SPEED
2090 PRINT "SPEED";
2100 INPUT S
2110 REM DANGEROUSITY CRASH CHECKS
2120 IF S>100 THEN 3190
2130 IF S<30 THEN 3220
2140 REM ILLEGAL?
2150 IF S>55 THEN 3090
2160 REM DRUNK DRIVERS DRIVE.
2170 FOR A=1 TO 2
2180 IF D(A,1)=0 THEN 2210
2190 D(A,1)=FN A(N)
2200 D(A,2)=FN A(C(D(A,1)))
2210 NEXT A
2220 REM HIT BY DRUNK DRIVER?
2230 FOR A=1 TO 2
2240 IF D(A,1)=0 THEN 2270
2250 IF D(A,1)=R AND R(R,J)=R(D(A,1),D(A,2)) THEN 2910
```

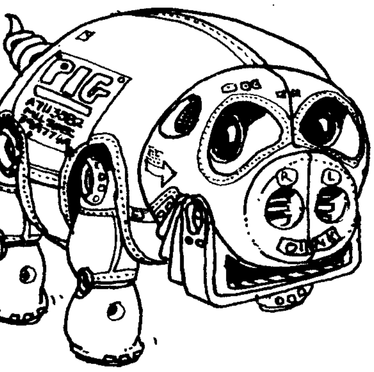
```
2260 IF D(A,1)=R(R,J) AND R(D(A,1),D(A,2))=R THEN 2910
2270 NEXT A
2280 REM IS DRIVER CAUGHT?
2290 FOR A=1 TO 2
2300 IF D(A,1)=0 THEN 2340
2310 FOR B=1 TO 8
2320 IF D(A,1)=P(B,1) AND D(A,2)=P(B,2) THEN 2400
2330 NEXT B
2340 NEXT A
2350 GOTO 1620
2360 REM SPEED DARE PRINT
2370 ON FN A(3) GOTO 2380,2400,2420
2380 PRINT "I DARE YOU TO SPEED ** (DAREDEVIL)"
2390 GOTO 2430
2400 PRINT "*SPEEDING* IS FUN (SO DO IT)!!"
2410 GOTO 2430
2420 PRINT "*SPEED*  I DARE YOU   *SPEED*  I DARE YOU"
2430 GOTO 2080
2440 REM DRUNK CAUGHT
2450 PRINT "A DRUNK DRIVER HAS BEEN CAUGHT.  THE POLICEMAN WHO"
2460 PRINT "ARRESTED HIM WILL BE TESTIFYING AT COURT FOR"
2470 PRINT "THE REST OF THE GAME."
2480 PRINT
2490 D(A,1)=0:D(A,2)=0:P(B,1)=0:P(B,2)=0
2500 GOTO 1620
2510 REM CHECK
2520 FOR A=1 TO 8
2530 IF H1=P(A,1) AND R(H1,H2)=R(P(A,1),P(A,2)) THEN 1440
2540 IF H1=R(P(A,1),P(A,2)) AND R(H1,H2)=P(A,1) THEN 1440
2550 NEXT A
2560 RETURN
2570 REM TELEGRAM PRINT-UP
2580 PRINT
2590 PRINT "DEAR ";N$;","
2600 PRINT "HOW ARE YOU?  I LIVE AT THE CORNER"
2610 PRINT "OF ROAD #";H1;" & #";R(H1,H2);"!!!"
2620 PRINT "COME ON OVER."
2630 PRINT "                         LOVE,"
2640 PRINT "                         GRAMMA"
2650 PRINT "((TELEGRAMMA CORP.  TELEGRAM CO.))"
2660 PRINT
2670 RETURN
2680 REM *DIREC, ROAD ON* PRINT-UP
2690 PRINT "GOING ";
2700 ON D GOTO 2710,2730,2750,2770,2790,2810,2830,2850
2710 PRINT "NORTH";
2720 GOTO 2860
2730 PRINT "WEST";
2740 GOTO 2860
2750 PRINT "NORTHEAST";
2760 GOTO 2860
2770 PRINT "SOUTHEAST";
2780 GOTO 2860
2790 PRINT "NORTHWEST";
2800 GOTO 2860
2810 PRINT "SOUTHWEST";
2820 GOTO 2860
2830 PRINT "EAST";
2840 GOTO 2860
2850 PRINT "SOUTH";
2860 PRINT " ON ROAD #";R
2872 RETURN
2880 REM AT GRAMMAS *PRINT*
2890 PRINT "YOU MADE IT TO GRAMMA'S HOUSE !!!!!!!!!"
2900 GOTO 3240
2910 REM DRUNK HIT YOUR CAR *PRINT*
2920 PRINT "KERSPLATT--DRUNK DRIVER HIT YOUR CAR."
2930 GOTO 3240
2940 REM CAR NEEDS FIXING *PRINT-UP*
2950 ON FN A(5) GOTO 2960,2980,3000,3020,3040
2960 PRINT "POP...FLAT TIRE"
2970 GOTO 3050
2980 PRINT "FLIP...YOUR CAR DID A SUMERSALT"
2990 GOTO 3050
3000 PRINT "*** OUT OF GAS ***"
3010 GOTO 3050
3020 PRINT "SMOOSH...BUS FLATTENED YOUR CAR."
3030 GOTO 3050
3040 PRINT "POP...BULLDOG ATE YOUR TIRE!"
3050 GOTO 3240
3060 REM DEAD END PRINT
3070 PRINT "*** DEAD END ***"
3080 GOTO 3240
3090 REM SPEEDING
3100 PRINT "*** SPEEDING ***"
3110 REM CAUGHT BY POLICE?
3120 FOR X=1 TO 8
3130 IF P(X,1)=R AND P(X,1)=J THEN 3170
3140 NEXT X
3150 PRINT "NOT CAUGHT"
3160 GOTO 2160
3170 PRINT "CAUGHT SPEEDING BY THE POLICE!!"
3180 GOTO 3240
3190 REM TOO FAST *CRASH*
3200 PRINT "KERSMOUSHIIEEEE...WENT TOO FAST !!!!"
3210 GOTO 3240
3220 REM TOO SLOW *CRASH*
3230 PRINT "-*((KRUNCH))*-  TOO SLOW...CAR BEHIND RAN INTO YOU!"
3240 REM AGAIN?
3250 PRINT
3260 PRINT "AGAIN";
3270 INPUT I$
3290 IF LEFT$(I$,1)="Y" THEN 1380
3300 REM CLOSING STATEMENT
3310 PRINT
3320 PRINT "*** SEE YOU ***"
3330 GOTO 4210
3340 REM RULES?
3350 PRINT:PRINT:PRINT "WANT THE RULES";
3360 INPUT I$
3380 IF LEFT$(I$,1)="N" THEN 3950
3390 PRINT CHR$(26)
3400 PRINT "GRAMMA NOMAD IS A NICE OLD LADY WHO HAS NOT QUITE"
3410 PRINT "MADE UP HER MIND WHERE SHE WANTS TO LIVE."
3420 PRINT "SHE HAS NARROWED IT DOWN TO SOMEWHERE IN GARBONZO CITY"
3430 PRINT "AND ON A STREET CORNER."
3440 PRINT
3450 PRINT "AT THE BEGINNING, THE MAILMAN GIVES YOU A TELEGRAM WRITTEN"
3460 PRINT "BY GRAMMA TELLING YOU WHERE SHE LIVES."
3470 PRINT "(I WILL READ IT TO YOU)."
3480 PRINT
3490 PRINT "YOU GET INTO YOUR CAR IT LRAC NILKNARF NAMGREB LODGE."
3500 PRINT "FROM THEEEEERE YOU GO TO GRAMMAS HOUSE."
3510 PRINT
3520 PRINT "YOU TRY TO GET THERE WITHOUT:"
3530 PRINT "CRASHUPS"
3540 PRINT "TICKETS"
3550 PRINT "FLAT TIRES"
3560 PRINT "RUNNING OUT OF GAS"
3570 PRINT "DEAD ENDS"
3580 PRINT
3590 PRINT "THERE IS AN 8-MAN POLICE FORCE ENFORCING THE LAWS"
3600 PRINT "OF GARBONZO CITY."
3610 GOSUB 50000
3620 PRINT "THERE ARE 2-DRUNKS ON THE STREETS OF GARBONZO"
3630 PRINT "CITY."
3640 PRINT
3650 PRINT "IF A POLICEMAN CATCHES A DRUNK, HE HAS TO"
3660 PRINT "TESTIFY IN COURT"
3670 PRINT "(WHICH TAKES THE REST OF THE GAME)"
3680 PRINT
3690 PRINT "IF A DRUNK DRIVER HITS YOU, YOU LOSE."
3700 PRINT
3810 PRINT "AT EACH JUNCTION, I WILL TELL YOU:"
3820 PRINT "THE DIRECTION YOU ARE GOING"
3830 PRINT "THE ROAD YOU ARE ON"
3840 PRINT "THE ROAD CROSSING"
3850 PRINT
3860 PRINT "I WILL ASK YOU:"
3870 PRINT "THE WAY YOU WANT TO TURN (I.E., LEFT)"
3880 PRINT "SPEED (IN MPH)"
3890 PRINT
3900 PRINT "AN OVERPASS IS NOT A JUNCTION, SO IT IS"
3910 PRINT "MERELY SKIPPED OVER.  IT IS UNANNOUNCED."
3920 PRINT
3930 PRINT "*THAT IS ALL*"
3940 PRINT
3950 RETURN
3960 REM DATA LINES
3970 DATA 18
3980 DATA -8,8,2,8,4,8,5,8,11,8,7,8,8,8,9,8,10
3990 DATA 3,7,17,7,10,7,1
4000 DATA 2,7,17,7,10
4010 DATA 3,7,18,7,11,7,1
4020 DATA 7,8,8,8,9,8,10,7,10,7,11,7,1,1,6
4030 DATA -2,7,10,7,5
4040 DATA 2,7,1,7,11
4050 DATA 8,7,16,7,15,7,5,7,14,7,13,7,1,7,12,7,11
4060 DATA 8,7,16,7,15,7,5,7,14,7,13,7,1,7,12,7,11
4070 DATA 8,7,16,7,15,7,5,7,14,7,13,7,1,7,12,7,11
4080 DATA -7,4,4,4,5,4,1,4,7,8,8,8,9,8,10
4090 DATA -3,8,8,8,9,8,10
4100 DATA -3,8,8,8,9,8,10
4110 DATA -3,8,8,8,9,8,10
4120 DATA -3,8,8,8,9,8,10
4130 DATA -3,8,8,8,9,8,10
4140 DATA -2,8,2,8,3
4150 DATA -5,8,2,8,3,8,4,8,5,1,6
4160 DATA 0,0,0,0,0,0,0
4210 END
50000 PRINT:LINE INPUT "ENTER 'RETURN' TO CONTINUE. ";XX$
50010 PRINT CHR$(26)
50020 RETURN
```

Not One (낫 원)

2개의 주사위를 사용하는, 규칙이 간단한 게임으로, '돼지'라는 이름으로도 알려져 있다.

먼저, 한 사람이 주사위를 던진다. 주사위는 계속해서 몇 번이고 던질 수 있으며, 차례차례 나온 눈의 합계가 득점이 된다. 그러나 만약 처음에 나온 눈과 같은 수의 눈이 나오면, 그 라운드의 득점은 0이 된다. 예를 들어 맨 처음에 주사위를 던졌을 때 5가 나왔다고 하자. 두 번째 이후에 5가 나오지 않는 한 계속해서 몇 번이고 던질 수 있지만, 5가 나오면 그 라운드의 득점은 0이 되는 것이다. 물론, 충분한 점수가 되었다고 생각하면 그만 던져도 된다. 당신과 컴퓨터가 각각 10라운드를 던져, 그 합계가 많은 쪽이 이긴다. 아마도 당신의 운이 좋지 않는 한 컴퓨터에게 질 것이다. 컴퓨터는 당신이 모르는 어떤 전략을 가지고 있으니까.

Not One was written in response to a challenge that appeared in the charter issue of *Creative Computing*. The game was written by Robert Puopolo and first appeared in *Creative Computing*, Mar/Apr 1975.




```
RUN
                    NOTONE

              CREATIVE COMPUTING
             MORRISTOWN NEW JERSEY


WOULD YOU LIKE THE INSTRUCTIONS? YES 설명이 필요합니까?

THE GAME OF NOTONE IS PLAYED WITH
TWO PLAYERS AND A PAIR OF DICE. THERE ARE
TEN ROUNDS IN THE GAME ONE ROUND CONSISTING
OF ONE TURN FOR EACH PLAYER. PLAYERS
(YOURSELF AND THE COMPUTER) ADD THE SCORE
THEY ATTAIN ON EACH ROUND, AND THE PLAYER
WITH THE HIGHEST SCORE AFTER TEN ROUNDS IS THE WINNER

ON EACH TURN THE PLAYER MAY ROLL THE TWO
DICE FROM 1 TO N TIMES. IF TI IS THE TOTAL OF DICE ON
THE ITH ROLL, THEN THE PLAYERS SCORE FOR THE TURN IS
T(1)+T(2)+T(3)+........+T(N).  HOWEVER,
AND HERE'S THE CATCH, IF ANY T(I) IS EQUAL TO T(1) THEN
THE TURN IS OVER AND HIS SCORE FOR THAT ROUND IS ZERO
AFTER EACH ROLL THAT DOESN'T EQUAL T(1), THE PLAYER CAN
DECIDE WHETHER TO ROLL AGAIN OR STOP AND
SCORE THE NUMBER OF POINTS ALREADY OBTAINED.



ROUND  1
 7
ROLL AGAIN ? YES 또 던지겠습니까?
 7
YOU GET A ZERO FOR THIS ROUND 이번 회는 0점입니다.

              COMPUTERS MOVE 컴퓨터의 차례

COMPUTER'S ROLL 1 : 7
COMPUTER'S ROLL 2 : 5
COMPUTER'S ROLL 3 : 11
COMPUTER'S ROLL 4 : 12
COMPUTER'S ROLL 5 : 8
COMPUTER'S ROLL 6 : 3

COMPUTER:  46              YOU:  0

ROUND  2
 12
ROLL AGAIN ? YES
 4
ROLL AGAIN ? YES
 6
ROLL AGAIN ? YES
 7
ROLL AGAIN ? YES
 10
ROLL AGAIN ? YES
 7

ROLL AGAIN ? YES
 8
ROLL AGAIN ? YES
 9
ROLL AGAIN ? YES
 11
ROLL AGAIN ? YES
 11
ROLL AGAIN ? YES
 4
ROLL AGAIN ? NO

              COMPUTERS MOVE

COMPUTER'S ROLL 1 : 6
COMPUTER'S ROLL 2 : 9
COMPUTER'S ROLL 3 : 7
COMPUTER'S ROLL 4 : 7
COMPUTER'S ROLL 5 : 4
COMPUTER'S ROLL 6 : 7

YOU:  89       COMPUTER:  86

ROUND  3
 8
ROLL AGAIN ? YES
 4
ROLL AGAIN ? YS_ES
 5
ROLL AGAIN ? YES
 6
ROLL AGAIN ? NO

              COMPUTERS MOVE

COMPUTER'S ROLL 1 : 8
COMPUTER'S ROLL 2 : 7
COMPUTER'S ROLL 3 : 3
COMPUTER'S ROLL 4 : 6
COMPUTER'S ROLL 5 : 4
COMPUTER'S ROLL 6 : 7

COMPUTER:  121             YOU:  112

ROUND  4
 11
ROLL AGAIN ? YES
 3
ROLL AGAIN ? YES
 12
ROLL AGAIN ? YES
 3
ROLL AGAIN ? YES
 6
ROLL AGAIN ? YES
 7
ROLL AGAIN ? YES
 8
ROLL AGAIN ? YES
 10
ROLL AGAIN ? NO

              COMPUTERS MOVE

COMPUTER'S ROLL 1 : 5
COMPUTER'S ROLL 2 : 9
COMPUTER'S ROLL 3 : 12
COMPUTER'S ROLL 4 : 8
COMPUTER'S ROLL 5 : 7
COMPUTER'S ROLL 6 : 4
COMPUTER'S ROLL 7 : 6
COMPUTER'S ROLL 8 : 11
COMPUTER'S ROLL 9 : 6

COMPUTER:  189             YOU:  172

ROUND  5
 11
ROLL AGAIN ? YES
 7
ROLL AGAIN ? YES
 5
```

```
ROLL AGAIN ? YES
 3
ROLL AGAIN ? YES
 7
ROLL AGAIN ? YES
 11
YOU GET A ZERO FOR THIS ROUND

               COMPUTERS MOVE

COMPUTER'S ROLL 1 : 8
COMPUTER'S ROLL 2 : 6
COMPUTER'S ROLL 3 : 2
COMPUTER'S ROLL 4 : 9
COMPUTER'S ROLL 5 : 12
COMPUTER'S ROLL 6 : 6

COMPUTER:  232              YOU:  172

ROUND  6
 4
ROLL AGAIN ? YES
 5
ROLL AGAIN ? YES
 9
ROLL AGAIN ? YES
 8
ROLL AGAIN ? YES
 7
ROLL AGAIN ? YES
 10
ROLL AGAIN ? YES
 7
ROLL AGAIN ? YES
 7
ROLL AGAIN ? NO

               COMPUTERS MOVE

COMPUTER'S ROLL 1 : 10
COMPUTER'S ROLL 2 : 6
COMPUTER'S ROLL 3 : 5
COMPUTER'S ROLL 4 : 7
COMPUTER'S ROLL 5 : 8
COMPUTER'S ROLL 6 : 4
COMPUTER'S ROLL 7 : 7
COMPUTER'S ROLL 8 : 4
COMPUTER'S ROLL 9 : 6

COMPUTER:  289              YOU:  229

ROUND  7
 6
ROLL AGAIN ? YES
 11
ROLL AGAIN ? YES
 6
YOU GET A ZERO FOR THIS ROUND

               COMPUTERS MOVE

COMPUTER'S ROLL 1 : 6
COMPUTER'S ROLL 2 : 3
COMPUTER'S ROLL 3 : 8
COMPUTER'S ROLL 4 : 11
COMPUTER'S ROLL 5 : 7
COMPUTER'S ROLL 6 : 2

COMPUTER:  326              YOU:  229

ROUND  8
 8
ROLL AGAIN ? YES
 8
YOU GET A ZERO FOR THIS ROUND

               COMPUTERS MOVE

COMPUTER'S ROLL 1 : 7
COMPUTER'S ROLL 2 : 11
COMPUTER'S ROLL 3 : 10
COMPUTER'S ROLL 4 : 10
COMPUTER'S ROLL 5 : 6
COMPUTER'S ROLL 6 : 6

COMPUTER:  376              YOU:  229

ROUND  9
 3
ROLL AGAIN ? YES
 8
ROLL AGAIN ? YES
 7
ROLL AGAIN ? YES
 12
ROLL AGAIN ? YES
 2
ROLL AGAIN ? YES
 7
ROLL AGAIN ? YES
 5
ROLL AGAIN ? YES
 8
ROLL AGAIN ? YES
 7
ROLL AGAIN ? YES
 8
ROLL AGAIN ? YES
 5
ROLL AGAIN ? YES
 8
ROLL AGAIN ? YES
 6
ROLL AGAIN ? YES
 9
ROLL AGAIN ? NO

               COMPUTERS MOVE

COMPUTER'S ROLL 1 : 8
COMPUTER'S ROLL 2 : 8
THE COMPUTER GETS A ZERO FOR THE TURN!

COMPUTER:  376              YOU:  324

ROUND  10
 7
ROLL AGAIN ? YES
 10
ROLL AGAIN ? YES
 5
ROLL AGAIN ? YES
 7
YOU GET A ZERO FOR THIS ROUND

               COMPUTERS MOVE

COMPUTER'S ROLL 1 : 6
COMPUTER'S ROLL 2 : 11
COMPUTER'S ROLL 3 : 11
COMPUTER'S ROLL 4 : 8
COMPUTER'S ROLL 5 : 3
COMPUTER'S ROLL 6 : 6
THE COMPUTER GETS A ZERO FOR THE TURN!

FINAL SCORE

COMPUTER:  376              YOU:  324
```

SCORING SUMMARY 점수 표

ROUND	YOU	COMPUTER
1	0	46
2	89	40
3	23	35
4	60	68
5	0	43
6	57	57
7	0	37
8	0	50
9	95	0
10	0	0
TOTALS:	324	376

324:376으로 컴퓨터의 승리

OK

```
3 PRINT TAB( 26);"NOT-ONE":PRINT
5 PRINT TAB( 20);"CREATIVE COMPUTING"
6 PRINT TAB( 19);"MORRISTOWN NEW JERSEY"
7 PRINT:PRINT:PRINT
10 DIM T(50),R(10),C(10),L(12)
15 INPUT "WOULD YOU LIKE THE INSTRUCTIONS";A$
20 IF LEFT$(A$,1)="Y" THEN 35
25 IF LEFT$(A$,1)="N" THEN 100
30 PRINT:PRINT "ANSWER YES OR NO!!":PRINT:GOTO 15
35 PRINT:PRINT "THE GAME OF NOT-ONE IS PLAYED WITH"
40 PRINT "TWO PLAYERS AND A PAIR OF DICE.  THERE ARE"
45 PRINT "TEN ROUNDS IN THE GAME, EACH ROUND CONSISTING"
50 PRINT "OF ONE TURN FOR EACH PLAYER.  PLAYERS"
55 PRINT "(YOURSELF AND THE COMPUTER) ADD THE SCORE"
60 PRINT "THEY ATTAIN ON EACH ROUND, AND THE PLAYER"
62 PRINT "WITH THE HIGHEST SCORE AFTER TEN ROUNDS IS THE WINNER":PRINT
67 PRINT "ON EACH TURN THE PLAYER MAY ROLL THE TWO"
69 PRINT "DICE FROM 1 TO N TIMES.  IF T1 IS THE TOTAL OF DICE ON"
72 PRINT "THE 1TH ROLL, THEN THE PLAYERS SCORE FOR THE TURN IS"
75 PRINT "T(1)+T(2)+T(3)+........+T(N).  HOWEVER,"
77 PRINT "AND HERE'S THE CATCH, IF ANY T(I) IS EQUAL TO T(1) THEN"
80 PRINT "THE TURN IS OVER AND HIS SCORE FOR THAT ROUND IS ZERO."
82 PRINT "AFTER EACH ROLL THAT DOESN'T EQUAL T(1), THE PLAYER CAN"
88 PRINT "DECIDE WHETHER TO ROLL AGAIN OR STOP AND "
90 PRINT "SCORE THE NUMBER OF POINTS ALREADY OBTAINED."
100 FOR T=1 TO 10:PRINT:PRINT "ROUND";T:PRINT "--------"
110 X=X+1:R1=INT(6*RND(1))+1
115 R2=INT(6*RND(1))+1:PRINT R1+R2
120 IF X>1 THEN 130
125 T(1)=R1+R2:GOTO 135
130 T(X)=R1+R2
131 IF T(1)<>T(X) THEN  135
132 PRINT "YOU GET A ZERO FOR THIS ROUND."
133 X=0:T1=0:GOTO 200
135 T1=T1+T(X)
140 INPUT "ROLL AGAIN";B$
145 IF LEFT$(B$,1)="Y" THEN 110
150 IF LEFT$(B$,1)="N" THEN R(T)=T1:X=0:T1=0:FOR A=1 TO 50:T(A)=0:NEXT:GOTO 200
160 PRINT:PRINT "ANSWER YES OR NO!!":PRINT: GOTO 140
200 PRINT:PRINT TAB( 15);"COMPUTERS MOVE:":PRINT
201 RESTORE
202 R1=INT(6*RND(1))+1:R2=INT(6*RND(1))+1
204 FOR D=2 TO R1+R2:READ L(D):NEXT:D=R1+R2
205 FOR C=1 TO L(D):IF C=1 THEN 215
210 R1=INT(6*RND(1))+1:R2=INT(6*RND(1))+1
215 PRINT "COMPUTER'S ROLL #";C;CHR$(8);":";R1+R2
220 IF C>1 THEN 230
225 T(1)=R1+R2:GOTO 242
230 T(C)=R1+R2
235 IF T(C)<>T(1) GOTO 242
236 PRINT "THE COMPUTER GETS A ZERO FOR THE TURN!!"
237 T1=0:GOTO 245
242 T1=T1+T(C):NEXT C
245 C(T)=T1:T1=0:X=0
250 C2=C2+C(T):C1=C1+R(T)
253 PRINT:FOR B=1 TO 50:T(B)=0:NEXT
255 IF T=10 THEN PRINT "FINAL SCORE":PRINT "----------"
260 IF C2<C1 THEN 270
263 PRINT"COMPUTER:";C2,"YOU:";C1:GOTO 300
270 PRINT "YOU:";C1,"COMPUTER:";C2
300 NEXT T
305 DATA 18,18,9,9,6,6,6,9,9,18,18
310 PRINT:PRINT "SCORING SUMMARY":PRINT "==============="
315 PRINT "ROUND";TAB( 15);"YOU";TAB( 25);"COMPUTER"
316 PRINT "-----";TAB( 15);"---";TAB( 25);"--------"
320 FOR E=1 TO 10:PRINT USING " ##            ###          ###";
    E,R(E),C(E):NEXT
325 PRINT:PRINT "TOTALS: ";TAB( 14);C1;TAB( 26);C2:PRINT
330 INPUT "PLAY AGAIN";ANS$
340 IF LEFT$(ANS$,1)="Y" THEN FOR XX=1 TO 50:T(XX)=0:NEXT:FOR XX=1 TO 10:
    R(XX)=0:C(XX)=0:NEXT:FOR XX=1 TO 12:L(XX)=0:NEXT:C1=0:C2=0:GOTO 100
    ELSE END
```

Obstacle(장애물 경주)

9×40의 테두리 안을 차를 타고 달리는 장애물 경주이다. 차는 '*'로 표시되는데, '!'나 '−'의 장애물 이외의 공백 부분밖에 달릴 수 없다. 그러한 장애물을 뛰어넘을 수도 없다. 왼쪽 위의 'S'가 출발 지점, 오른쪽 아래의 'F'가 골(goal) 지점이다. 차가 F에 도착하면 당신의 승리! 이 때 소요 시간이 표시된다. 장애물에 부딪치면 당신이 지게 된다.

610행에서, 세로의 첨자 수 15×가로의 첨자 수 50인 M의 배열을 선언한다. 나중에 개량할 수 있도록 약간 여유 있게 취한다.

620행~680행에서 모든 변수를 초기화 한다.

700행~780행에서 난수를 발생시켜 장애물을 놓는다. I는 세로의 첨자 수, J는 가로의 첨자 수, R1은 난수이다. 720행에서 0부터 1까지의 난수에 1.2를 곱해, 소숫점 이하를 버린다(이 1.2를 증가시키면 장애물이 많아진다). 결국 R1은 0이나 1의 값을 취하게 된다. R1의 값이 0이면 다음의 FOR~NEXT 루우프에서 M(I, J)에 스페이스(space —— 공백)가 할당되고, 1이면 '!'가 할당된다.

840행~850행에서 가장자리의 벽을 만든다.

890행에서, I와 J의 값이 K와 L에 보관된다. 이것은 출력 루우틴을 끝낸 다음, 970행에서 역시 K와 L부터 다시 할당된다.

910행~960행의 FOR~NEXT 루우프에 의해 행렬 M의 내용이 출력된다. 특히 930행에서는 CHR$ 함수를 사용하여 기억 용량 중의 값을 ASCII 코우드로 변환한다.

990행은, D1의 값을 조사해서, 차가 출발했는지를 판단한다. D1>0이면 주프로그램으로 점프하고, D1≦0이면 다음행으로 진행하여, 계속할 것인지 새 코스를 택할 것인지, 그만할 것인지를 물어, 선택한 것을 실행한다. 1130행에서도 D1의 값을 조사해서, D1의 값이 1이 아니면 차를 움직이는 이동 루우틴으로 가게 되어 있다.

1080행부터 주프로그램이 시작된다. 1100행에서 방향을 묻고, 1110행에서 입력된 값 D가 바른지 어떤지를 조사한다. 1120행에서는 속도 S가 입력되어, 1130행에서 카운터 S1, D1의 값에 가산된다. 1160행~1180행에서는 어느 방향으로 이동할 것인가를 판단한다(1은 위쪽, 2는 오른쪽, 3은 아래쪽).

1190행~1220행은 방향 1의 이동 루우틴이다. 1190행에서, I, J의 값에 따라 차(*)를 지운다. 1200행, 1210행에서, (I, J)부터 (I−S, J)까지의 사이에 '!'나 '−'의 장애물이 없는지를 조사하여, 만약 장애물이 있으면 게임이 끝난다. 장애물이 없으면 1220행에서 차는 (I−1, J)의 위치에 할당되어, 다시 (10, 41)에 도착되었는지를 체크한다. 만약 도착했으면, 당신의 승리로 END 루우틴이 실행된다. (10, 41)이 아니면, 게임은 계속되며 출력 루우틴의 870행으로 점프한다. 결국 이 루우틴은, 장애물에 부딪쳐 게임이 끝나거나, 골 지점(10, 41)에 도착해서 END로 진행하거나의 어느 한 가지이다.

1380행에서 턴(turn) 수×100÷주행 거리로 소요 시간을 계산한다. 그리고, 1390행에서 그 값을 출력하고, 1400행, 1410행에서는 게임을 또 할 것인지를 물어, 또 한다면 670행으로 진행시킨다.

The program and these notes were written by Eric Erickson.

```
RUN
                              OBSTACLE
                         CREATIVE COMPUTING
                       MORRISTOWN, NEW JERSEY
```

설명이 필요합니까?	DO YOU WANT INSTRUCTIONS? YES
차는 '*'로 표시됩니다. 'S'에서 출발하여 '!'나 '−'의 장애물 이외의 공백을 달려 'F' 지점까지 갑니다.	THE OBJECT OF THIS GAME IS TO MOVE YOUR CAR'*' BEGINNING AT'S' AND NAVIGATE THROUGH THE OBSTACLES '!'&'-' WALLS TO THE SPACE MARKED 'F', YOU MUST LAND ON THE SPACE MARKED 'F' ON THE EXACT AMOUNT OF SPACES
사선 방향으로 움직일 수 없읍니다.	THERE ARE NO DIAGONAL MOVES.
왼쪽으로 움직일 수 없읍니다.	THERE ARE NO RIGHT TO LEFT MOVES.
방향 1은 위쪽으로	DIRECTIONS NO.1 IS UP.
방향 2는 왼쪽에서 오른쪽으로	DIRECTION NO.2 IS LEFT TO RIGHT
방향 3은 아래쪽으로	DIRECTION NO.3 IS DOWN.
속도는 이동하는 스페이스의 수입니다.	SPEED IS THE NO. OF SPACES IN A GIVEN DIRECTION

```
------------------------------------------
!S    !      ! !  !      ! !     !    !  !
!   ! !     !          !     !           !
! !       ! !                   !    !   !
!    !         !            !!!          !
!!      !    !!    !   !            !    !
!   !!           !    !            !  !! !
!  !       !       !!  !     !      ! !! !
!        !   !      !!    !          !!! !
!         !     !    ! !   !!   !       F!
------------------------------------------
OPTION :(A=CONTINUE,B=NEW COURSE,C=STOP)? A
DIRECTION? 3
SPEED? 4
ILLEGAL MOVE...... YOU LOSE!!

DO YOU WISH TO PLAY AGAIN? YES
------------------------------------------
!S  !!  !           !      !  ! !     !! !
!   !             !                      !
!    ! ! !!    !       !        !        !
!     ! ! !             !     !     !    !
!!            !       !     !   !   !    !
!        !  ! !           !!   !  !      !
!   ! !      !  !    !  !!  ! !   !! !  !!
!!            !        !!    !!       !! !
!                 ! ! !              !! F!
------------------------------------------
OPTION :(A=CONTINUE,B=NEW COURSE,C=STOP)? A
DIRECTION? 2

SPEED? 1
------------------------------------------
! * !!  !           !      !  ! !     !! !
!   !             !                      !
!    ! ! !!    !       !        !        !
!     ! ! !             !     !     !    !
!!            !       !     !   !   !    !
!        !  ! !           !!   !  !      !
!   ! !      !  !    !  !!  ! !   !! !  !!
!!            !        !!    !!       !! !
!                 ! ! !              !! F!
------------------------------------------
DIRECTION? 3

SPEED? 4
------------------------------------------
!   !!  !           !      !  ! !     !! !
!   !             !                      !
!    ! ! !!    !       !        !        !
!     ! ! !             !     !     !    !
!!*           !       !     !   !   !    !
!        !  ! !           !!   !  !      !
!   ! !      !  !    !  !!  ! !   !! !  !!
!!            !        !!    !!       !! !
!                 ! ! !              !! F!
------------------------------------------
```

OPTION: 선택(A=그대로 계속, B=새 코스, C=정지)은?
DIRECTION? 방향은?
SPEED? 속도는?
ILLEGAL MOVE...... YOU LOSE!! 부딪쳤읍니다.
DO YOU WISH TO PLAY AGAIN? 다시 한 번 하겠읍니까?

Later in the Run

```
DIRECTION? 1

SPEED? 2

------------------------------------------
!   !! !           !      !  ! !     !! !
!   !             !*                     !
!    ! ! !!    !       !        !        !
!     ! ! !             !     !     !    !
!!            !       !     !   !   !    !
!        !  ! !           !!   !  !      !
!   ! !      !  !    !  !!  ! !   !! !  !!
!!            !        !!    !!       !! !
!                 ! ! !              !! F!
------------------------------------------
```

```
DIRECTION? 2

SPEED? 6

------------------------------------------
!   !! !           !      !  ! !     !! !
!   !             !      *               !
!    ! ! !!    !       !        !        !
!     ! ! !             !     !     !    !
!!            !       !     !   !   !    !
!        !  ! !           !!   !  !      !
!   ! !      !  !    !  !!  ! !   !! !  !!
!!            !        !!    !!       !! !
!                 ! ! !              !! F!
------------------------------------------
```

```
DIRECTION? 2

SPEED? `\`\8

------------------------------------------
!   !! !           !      !  ! !     !! !
!   !             !              *       !
!    ! ! !!    !       !        !        !
!     ! ! !             !     !     !    !
!!            !       !     !   !   !    !
!        !  ! !           !!   !  !      !
!   ! !      !  !    !  !!  ! !   !! !  !!
!!            !        !!    !!       !! !
!                 ! ! !              !! F!
------------------------------------------
DIRECTION? 3

SPEED? 8
ILLEGAL MOVE...... YOU LOSE!!

DO YOU WISH TO PLAY AGAIN? NO
OK
```

```
10 PRINT TAB( 26)"OBSTACLE"
20 PRINT TAB( 20)"CREATIVE COMPUTING"
30 PRINT TAB( 18)"MORRISTOWN, NEW JERSEY"
150 REM VARIABLES          USAGE
160 REM ----------------------------------------------------------
170 REM   A1                 DECIMAL VALUE FOR THE CHARACTER'*'
180 REM   A2                 DECIMAL VALUE FOR THE CHARACTER ' '
190 REM   A3                 DECIMAL VALUE FOR THE CHARACTER '!'
200 REM   A4                 DECIMAL VALUE FOR THE CHARACTER 'S'
210 REM   A5                 DECIMAL VALUE FOR THE CHARACTER 'F'
220 REM   A6                 DECIMAL VALUE FOR THE CHARACTER '-'
230 REM   D                  DIRECTION
240 REM   D1                 TOTAL NO. OF TURNS TAKEN
250 REM   I                  ROW MATRIX
260 REM   J                  COLUMN MATRIX INDEX
270 REM   K                  PLACE HOLDER FOR THE VARIABLE I
280 REM   L                  PLACE HOLDER FOR THE VARIABLE J
290 REM   M                  MATRIX VARIBLE
300 REM   N$                 INPUT TO YES-NO QUESTIONS
310 REM   R1                 RANDOM NUMBER GENERATOR VARIABLE
320 REM   S                  SPEED
330 REM   S1                 TOTAL SPEED COUNTER
340 REM   T                  'TIME' RATIO (D1/S1)*100
350 REM
360 REM                            START PROGRAM
370 REM
380 REM
390 REM         INSTRUCTIONS
400 REM
410 PRINT
420 PRINT
450 PRINT "DO YOU WANT INSTRUCTIONS";:INPUT N$
455 PRINT
460 IF LEFT$(N$,1)<>"Y" THEN 610
470 PRINT"THE OBJECT OF THIS GAME IS TO MOVE YOUR CAR '*'"
480 PRINT" BEGINNING AT 'S' AND NAVIGATE THROUGH THE OBSTACLES"
490 PRINT"'\' & '-' WALLS TO THE SPACE MARKED 'F'  YOU MUST LAND"
500 PRINT"ON THE SPACE MARKED 'F' ON THE EXACT AMOUNT OF SPACES."
505 PRINT
510 PRINT"THERE ARE NO DIAGONAL MOVES."
520 PRINT"THERE ARE NO RIGHT TO LEFT MOVES."
525 PRINT
530 PRINT"DIRECTION NO.1 IS UP."
540 PRINT "DIRECTION NO.2 IS LEFT TO RIGHT."
550 PRINT"DIRECTION NO.3 IS DOWN."
560 PRINT
570 PRINT"SPEED IS THE NUMBER OF SPACES IN A GIVEN DIRECTION."
580 REM
590 REM                  INITIALATION
600 REM
610 DIM M(15,50)
620 A1=ASC("*")-
630 A2=ASC("\")
640 A3=ASC(" ")
650 A4=ASC("S")
660 A5=ASC("F")
670 A6=ASC("-")
680 D1=0:S1=0
690 REM   *** NOTE - COURSE SET UP ROUTINE
700 FOR I=1 TO 10
710 FOR J=1 TO 42
720 R1=INT(RND(1)*1.2)
730 IF R1=0 THEN 760
740 M(I,J)=A2
750 GOTO 770
760 M(I,J)=A3
770 NEXT J
780 NEXT I
790 M(2,2)=A4
800 M(10,40)=A3
810 M(10,41)=A5
820 M(2,3)=A3
830 M(3,2)=A3
840 FOR I=1 TO 10:M(I,1)=A2:M(I,42)=A2:NEXT I
850 FOR J=1 TO 42:M(1,J)=A6:M(11,J)=A6:NEXT J
860 REM
870 REM        ** PRINTING ROUTINE **
880 REM
890 K=I:L=J
900 PRINT
910 FOR I=1 TO 11
920 FOR J=1 TO 42
930 PRINT CHR$(M(I,J));
940 NEXT J
950 PRINT
960 NEXT I
970 I=K:J=L
980 REM        88 NOTE- NEW COURSE OPTION**
990 IF D1>0 THEN 1080
1000 PRINT"OPTION: (A = CONTINUE, B = NEW COURSE, C = STOP)";
1010 INPUT N$
1020 IF N$="A" THEN 1080
1030 IF N$="B" THEN 670
1040 IF N$="C" THEN 1420
1050 PRINT"INVALID OPTION."
1060 GOTO 1000
1070 REM
1080 REM            ** MAIN PROGRAM BODY **
1090 REM
1100 PRINT"DIRECTION";:INPUT D:D=INT(ABS(D))
1110 IF D<1 THEN 1100
1111 IF D>3 THEN 1100
1120 PRINT"SPEED";:INPUT S:S=INT(ABS(S))
1130 D1=D1+1:S1=S1+S:IF D1<>1 THEN 1160
1140 REM            ** NOTE - CAR STARTS AT POSITION 2,2
1150 J=2:I=2
1160 IF D=1 THEN 1190
1170 IF D=2 THEN 1230
1180 IF D=3 THEN 1270
1190 M(I,J)=A3:REM      ** WIPES OUT PREVIOUS CHARACTER **
1200 FOR C=1 TO S:I=ABS(I-1):IF M(I,J)=A2 THEN 1340
1210 IF M(I,J)=A6 THEN 1340
1215 NEXT C
1220 M(I,J)=A1: GOTO 1310
1230 M(I,J)=A3
1240 FOR C=1 TO S:J=J+1:IF M(I,J)=A2 THEN 1340
1250 IF M(I,J)=A6 THEN 1340
1255 NEXT C
1260 M(I,J)=A1: GOTO 1310
1270 M(I,J)=A3
1280 FOR C=1 TO S: I=I+1:IF M(I,J)=A2 THEN 1340
1290 IF M(I,J)=A6 THEN 1340
1295 NEXT C
1300 M(I,J)=A1
1310 REM      ** NOTE - WINNING CHECK**
1320 IF M(10,41)<>A1 THEN 870
1330 GOTO 1360
1340 PRINT"ILLEGAL MOVE...... YOU LOSE!!":GOTO 1400
1350 REM
1360 REM          ** END OF REN ROUTINE **
1370 REM
1380 T=(D1/S1)*100
1390 PRINT "YOU WON!! AND YOUR TIME IS";T
1400 PRINT:PRINT"DO YOU WISH TO PLAY AGAIN";:INPUT N$
1410 IF LEFT$(N$,1)="Y" THEN 670
1420 END
```

Octrix (옥트릭스)

네 사람, 또는 세 사람과 컴퓨터가 함께 할 수 있는 게임이다. 여기서는 각 수트(suit) 1부터 8까지의 합계 32장의 카드를 사용한다. 이것을 8장씩 네 사람의 플레이어에게 분배한다. 각 플레이어는 한 장씩 카드를 내어, 일정한 규칙(sample run 참고)에 따라 승부를 결정한다. 8장을 모두 내면 새로운 카드를 분배하여, 같은 방법으로 게임이 계속된다. 이 게임을 배우는 최선의 방법은, 우선 해 보는 것이다. 그리고 잘 관찰하면 요령도 알게 될 것이다.

Octrix was written by Rogers Hamilton.

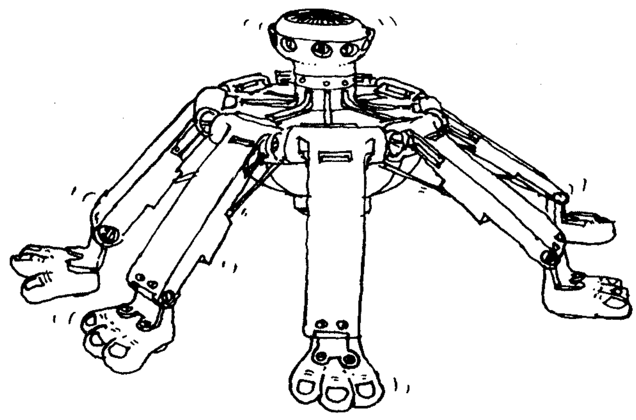
```
RUN

                    OCTRIX
              CREATIVE COMPUTING
            MORRISTOWN, NEW JERSEY


TEACH GAME(Y OR N)? Y
  THIS  IS A GAME CALLED OCTRIX.  EACH PLAYER IS DEALT 8
CARDS RANGING FROM ACE THROUGH EIGHT.  THE CARDS ARE
RANKED ACCORDING TO BRIDGE SUITS WITH THE ACE OF CLUBS THE
LOWEST AND THE EIGHT OF SPADES HIGHEST.  THE OBJECT IS TO
WIN AS MANY OF THE EIGHT TRICKS AS POSSIBLE.  EACH TRICK
PLAYED DETERMINES THE PLAY OF THE NEXT TRICK.  IF THE HIGH
AND LOW CARDS PLAYED MATCH COLOR THE NEXT TRICK WILL BE
HIGH AND IF THEY DO NOT MATCH IT WILL BE LOW.  IT IS IM-
PORTANT TO SET STRATEGY TO WIN CONSECUTIVE TRICKS IN THAT
SCORING IS 1 POINT PER TRICK, 4 FOR TWO IN A ROW,9 FOR 3, UP
TO 64 FOR ALL EIGHT.

    RESPOND TO THE INPUT PROMPT WITH THE CARD YOU WANT TO
PLAY IN A TWO CHARACTER FORMAT WITH THE VALUE(A-8) AS THE
FIRST CHARACTER, AND SUIT(C,D,H,S) AS THE SECOND CHARACTER.
    (TO SEE THE REMAINING CARDS, ENTER A'P' IN
    RESPONSE TO THE 'WHAT CARD' QUERY)

THAT'S IT, GOOD LUCK!!
```

카드의 순위는, 스페이드, 하트, 다이아몬드, 클럽의 순. 스페이드의 8이 최강, 클럽의 1이 최약. 1회 이기면 1점, 2회 계속 이기면 4점, ……8회 계속 이기면 64점을 얻습니다.
먼저, 카드의 숫자(A~8), 그 다음 카드의 종류(C, D, H, S)를 입력합니다. 나머지 카드를 보려면 'P'를 입력합니다. 승리한 사람이 다음 번의 규칙을 정합니다.
전회의 최강의 카드와 최약의 카드의 색이 같으면 다음 회는 강자가 승리, 그렇지 않으면 약자가 승리합니다.

```
HOW MANY POINTS (0 ENTRY GIVES STANDARD 88)? 0   몇 번 게임을 하겠읍니까?
HOW MANY PLAYERS? 3     몇 사람이 합니까?
ENTER PLAYER'S NAME? JEFF
ENTER PLAYER'S NAME? BRUCE
ENTER PLAYER'S NAME? STEVE
SHOULD I PLAY TOO(Y OR N)? Y   컴퓨터도 참가합니까?
```

	JEFF'S HAND					BRUCE'S HAND					STEVE'S HAND					COMPUTER'S HAND				
	CLB	DIA	HRT	SPD		CLB	DIA	HRT	SPD		CLB	DIA	HRT	SPD		CLB	DIA	HRT	SPD	
!A	!	!	!	!*	!!A	!	!*	!	!	!!A	!	!	!*	!	!!A	!*	!	!	!	!A
!2	!	!*	!*	!	!!2	!	!	!	!*	!!2	!*	!	!	!	!!2	!	!	!	!	!2
!3	!	!	!	!	!!3	!*	!	!	!	!!3	!	!	!	!	!!3	!	!*	!*	!*	!3
!4	!*	!	!	!	!!4	!	!	!	!	!!4	!	!	!*	!*	!!4	!	!*	!	!	!4
!5	!	!	!	!*	!!5	!*	!	!	!	!!5	!	!*	!	!	!!5	!	!	!*	!	!5
!6	!	!*	!	!	!!6	!*	!	!	!	!!6	!	!	!	!*	!!6	!	!	!*	!	!6
!7	!*	!	!	!	!!7	!	!*	!*	!	!!7	!	!	!	!*	!!7	!	!	!	!	!7
!8	!	!	!	!*	!!8	!	!	!*	!	!!8	!*	!	!	!	!!8	!	!*	!	!	!8

```
TRICK # 1 (HIGH CARD WINS)
WHAT CARD, JEFF
[redacted]
WHAT CARD, BRUCE
[redacted]
WHAT CARD, STEVE
[redacted]
JEFF PLAYED THE EIGHT OF SPADES
BRUCE PLAYED THE FIVE OF CLUBS
STEVE PLAYED THE FIVE OF DIAMONDS
I PLAYED THE SIX OF HEARTS
JEFF WON TRICK # 1      제프가 이겼읍니다.
TRICK # 2 (HIGH CARD WINS)
WHAT CARD, JEFF
[redacted]
WHAT CARD, BRUCE
[redacted]
WHAT CARD, STEVE
[redacted]
JEFF PLAYED THE FIVE OF SPADES
BRUCE PLAYED THE TWO OF SPADES
STEVE PLAYED THE FOUR OF SPADES
I PLAYED THE EIGHT OF DIAMONDS
I WON TRICK # 2
TRICK # 3 (LOW CARD WINS)
WHAT CARD, JEFF
[redacted]
WHAT CARD, BRUCE
[redacted]
WHAT CARD, STEVE
[redacted]
JEFF PLAYED THE FOUR OF CLUBS
BRUCE PLAYED THE'SIX OF CLUBS
STEVE PLAYED THE SIX OF SPADES
I PLAYED THE ACE OF CLUBS
I WON TRICK # 3
TRICK # 4 (HIGH CARD WINS)
WHAT CARD, JEFF
[redacted]
```



```
           JEFF'S HAND                        BRUCE'S HAND                       STEVE'S HAND                     COMPUTER'S HAND
     CLB    DIA    HRT    SPD          CLB    DIA    HRT    SPD.          CLB    DIA    HRT    SPD          CLB    DIA    HRT    SPD
!A   !      !      !      !* !!A       !      !*     !      !  !!A       !      !      !*     !  !!A       !      !      !      !  !A
!2   !      !*     !*     !  !!2       !      !      !      !  !!2       !*     !      !      !  !!2       !      !      !      !  !2
!3   !      !      !      !  !!3       !*     !      !      !  !!3       !      !      !      !  !!3       !      !*     !*     !* !3
!4   !      !      !      !  !!4       !      !      !      !  !!4       !      !      !*     !  !!4       !      !*     !      !  !4
!5   !      !      !      !  !!5       !      !      !      !  !!5       !      !      !      !  !!5       !      !      !*     !  !5
!6   !      !*     !      !  !!6       !      !      !      !  !!6       !      !      !      !  !!6       !      !      !      !  !6
!7   !*     !      !      !  !!7       !      !*     !*     !  !!7       !      !      !      !* !!7       !      !      !      !  !7
!8   !      !      !      !  !!8       !      !      !*     !  !!8       !*     !      !      !  !!8       !      !      !      !  !8
```

```
WHAT CARD, JEFF
[redacted]
WHAT CARD, BRUCE
[redacted]
WHAT CARD, STEVE
[redacted]
JEFF PLAYED THE SIX OF DIAMONDS
BRUCE PLAYED THE EIGHT OF HEARTS
STEVE PLAYED THE FOUR OF HEARTS
I PLAYED THE FIVE OF HEARTS
BRUCE WON TRICK # 4
TRICK # 5 (HIGH CARD WINS)
WHAT CARD, JEFF
[redacted]
WHAT CARD, BRUCE
[redacted]
WHAT CARD, STEVE
[redacted]
JEFF PLAYED THE SEVEN OF CLUBS
BRUCE PLAYED THE SEVEN OF HEARTS
STEVE PLAYED THE EIGHT OF CLUBS
I PLAYED THE FOUR OF DIAMONDS
STEVE WON TRICK # 5
TRICK # 6 (LOW CARD WINS)
WHAT CARD, JEFF
[redacted]
WHAT CARD, BRUCE
[redacted]
WHAT CARD, STEVE
[redacted]
JEFF PLAYED THE TWO OF HEARTS
BRUCE PLAYED THE THREE OF CLUBS
STEVE PLAYED THE ACE OF HEARTS
I PLAYED THE THREE OF SPADES
STEVE WON TRICK # 6
TRICK # 7 (LOW CARD WINS)
WHAT CARD, JEFF
[redacted]
WHAT CARD, BRUCE
[redacted]
WHAT CARD, STEVE
[redacted]
JEFF PLAYED THE TWO OF DIAMONDS
BRUCE PLAYED THE ACE OF DIAMONDS
STEVE PLAYED THE SEVEN OF SPADES
I PLAYED THE THREE OF DIAMONDS
BRUCE WON TRICK # 7
JEFF PLAYED THE ACE OF SPADES
BRUCE PLAYED THE SEVEN OF DIAMONDS
STEVE PLAYED THE TWO OF CLUBS
I PLAYED THE THREE OF HEARTS
JEFF WON TRICK # 8
THAT HAND JEFF SCORED  2 POINTS FOR A 2 TOTAL
BRUCE SCORED  2 POINTS FOR A 2 TOTAL
STEVE SCORED  4 POINTS FOR A 4 TOTAL
I SCORED  4 POINTS FOR A 4 TOTAL
```

```
           JEFF'S HAND                        BRUCE'S HAND                       STEVE'S HAND
     CLB    DIA    HRT    SPD          CLB    DIA    HRT    SPD          CLB    DIA    HRT    SPD
!A   !      !      !*     !  !!A       !      !      !      !  !!A       !      !      !      !* !!A
!2   !      !      !      !  !!2       !      !*     !      !  !!2       !      !      !*     !* !!2
!3   !      !      !*     !  !!3       !      !      !      !* !!3       !*     !      !      !  !!3
!4   !      !*     !      !  !!4       !      !      !*     !* !!4       !      !      !      !  !!4
!5   !*     !      !      !  !!5       !      !      !      !  !!5       !      !      !*     !  !!5
!6   !*     !      !      !* !!6       !      !      !*     !  !!6       !      !      !      !  !!6
!7   !      !      !      !  !!7       !*     !      !*     !  !!7       !      !*     !      !* !!7
!8   !*     !      !*     !  !!8       !      !*     !      !  !!8       !      !      !      !* !!8
```

```
TRICK # 1 (HIGH CARD WINS)
WHAT CARD, JEFF
[redacted]
WHAT CARD, BRUCE
[redacted]
WHAT CARD, STEVE
[redacted]
JEFF PLAYED THE SIX OF CLUBS
BRUCE PLAYED THE FOUR OF SPADES
STEVE PLAYED THE EIGHT OF SPADES
I PLAYED THE SIX OF DIAMONDS
STEVE WON TRICK # 1
```

```
1 PRINT CHR$(26);TAB( 27)"OCTRIX"
2 PRINT TAB( 20)"CREATIVE COMPUTING"
3 PRINT TAB( 18)"MORRISTOWN, NEW JERSEY"
5 PRINT
6 PRINT
7 US$="--------------------------------"
10 DIM A(32),P(4,9),C$(255),Q(4,11),T$(72)
11 DIM N$(72),Y(72)
40 RESTORE
50 FOR X=0 TO 7
60 READ Y$(X)
70 NEXT X
80 FOR X=0 TO 3
90 READ X$(X)
100 NEXT X
110 DATA"ACE","TWO","THREE","FOUR","FIVE","SIX","SEVEN","EIGHT"
120 DATA"CLUBS","DIAMONDS","HEARTS","SPADES"
130 FOR X=0 TO 9
140 READ T$(X)
150 DATA "A","2","3","4","5","6","7","8","LOW","HIGH"
160 NEXT X
170 PRINT"TEACH GAME (Y OR N)";
180 INPUT Z$
185 Z$=LEFT$(Z$,1)
190 IF Z$<>"Y" THEN 380
200 PRINT:PRINT"  THIS IS A GAME CALLED OCTRIX.  EACH PLAYER IS DEALT 8"
210 PRINT"CARDS RANGING FROM ACE THROUGH EIGHT.  THE CARDS ARE"
220 PRINT"RANKED ACCORDING TO BRIDGE SUITS WITH THE ACE OF CLUBS THE"
230 PRINT"LOWEST AND THE EIGHT OF SPADES HIGHEST.  THE OBJECT IS TO"
240 PRINT"WIN AS MANY OF THE EIGHT TRICKS AS POSSIBLE.  EACH TRICK "
250 PRINT"PLAYED DETERMINES THE PLAY OF THE NEXT TRICK.  IF THE HIGH "
260 PRINT"AND LOW CARDS PLAYED MATCH COLOR THE NEXT TRICK WILL BE "
270 PRINT"HIGH AND IF THEY DO NOT MATCH IT WILL BE LOW.  IT IS IM-"
280 PRINT"PORTANT TO SET STRATEGY TO WIN CONSECUTIVE TRICKS IN THAT "
290 PRINT"SCORING IS 1 POINT PER TRICK, 4 FOR TWO IN A ROW, 9 FOR 3,"
300 PRINT"UP TO 64 FOR ALL EIGHT."
305 PRINT
310 PRINT"    RESPOND TO THE INPUT PROMPT WITH THE CARD YOU WANT TO"
320 PRINT"PLAY IN A TWO CHARACTER FORMAT WITH THE VALUE (A-8) AS THE "
330 PRINT"FIRST CHARACTER, AND SUIT (C,D,H,S) AS THE SECOND CHARACTER."
340 PRINT"    (TO SEE THE REMAINING CARDS, ENTER A 'P' IN"
350 PRINT"    RESPONSE TO THE 'WHAT CARD' QUERY)"
360 PRINT
370 PRINT"THAT'S IT, GOOD LUCK!!"
380 PRINT
390 FOR X=1 TO 15
400 READ Z
410 M$=M$+CHR$(Z)
420 NEXT X
430 DATA 35,35,35,35,13,72,72,72,72,13,73,73,73,73,13
440 Z9=88
450 PRINT"HOW MANY POINTS (0 ENTRY GIVES STANDARD 88)";
460  INPUT Z
470 IF Z=0 THEN 490
480 Z9=Z
490 FOR X=0 TO 31
500 A(X)=X
510 NEXT X
520 PRINT"HOW MANY PLAYERS";
530 INPUT N
540 N=INT(N)
550 IF N>4 THEN 570
560 IF N>0 THEN 590
570 PRINT"ONLY ONE TO FOUR PLAYERS ALLOWED, RE-ENTER."
580 GOTO 520
590 FOR X=0 TO N-1
600 Q(X,0)=0
610 PRINT "ENTER NAME OF PLAYER #";X+1;
620 INPUT N$(X)
630 Y=LEN(N$(X))
640 FOR Z=1 TO Y
650 T$=MID$(N$(X),1,Z-1)
660 IF T$=" " THEN 680
670 NEXT Z
680 IF Z>1 THEN 710
690 PRINT"DON'T START NAME WITH SPACE, RE-";
700 GOTO 610
710 S$(X)=MID$(N$(X),1,Z-1)
720 NEXT X
730 FOR J=0 TO 127
740 C$(J)=" "
750 NEXT J
```

```
760 IF N=4 THEN 850
770 IF N=1 THEN 810
780 PRINT"SHOULD I PLAY TOO (Y OR N)";
790 INPUT Z$
795 Z$=LEFT$(Z$,1)
800 IF Z$<>"Y" THEN 850
810 S$(N)="COMPUTER"
820 N$(N)="I"
830 Q(N,0)=0
840 N=N+1
850 FOR I=0 TO 31
860 X=A(I)
870 Y=INT(RND(1)*(32-I)+I)
880 A(I)=A(Y)
890 A(Y)=X
900 NEXT I
910 FOR Y=0 TO 7
920 FOR X=0 TO N-1
930 P(X,Y)=A(Y*4+X)
940 C$(X*32+P(X,Y))="*"
950 NEXT X
960 NEXT Y
970 H=1
980 PRINT:GOSUB 1680
990 FOR R=1 TO 7
1000 PRINT:PRINT"TRICK #";R;"("T$(8+H)" CARD WINS)"
1010 FOR X=0 TO N-1
1020 IF S$(X)="COMPUTER"THEN 2090
1030 Z=Z*Z
1040 PRINT"WHAT CARD, "S$(X)
1050 PRINT M$;
1060 INPUT E$
1070 IF E$<>"P" THEN 1100
1080 GOSUB 1680
1090 GOTO 1040
1100 Y=LEN(E$)
1110 IF Y=2 THEN 1140
1120 PRINT"BAD INPUT, RE-ENTER."
1130 GOTO 1050
1140 Y$=MID$(E$,1,1)
1150 Z$=MID$(E$,2,1)
1160 IF VAL(Y$)>0 THEN 1190
1170 IF Y$<>"A" THEN 1120
1180 Y$="1"
1190 Y=VAL(Y$)
1200 IF Y=0 THEN 1120
1210 IF Y>8 THEN 1120
1220 Z=0
1230 Q(X,10)=0
1240 IF Z$="C" THEN 1320
1250 Z=3
1260 IF Z$="S" THEN 1320
1270 Q(X,10)=1
1280 Z=1
1290 IF Z$="D" THEN 1320
1300 Z=2
1310 IF Z$<>"H" THEN 1120
1320 Y=(Y-1)*4+Z
1330 IF C$(X*32+Y)<>"*" THEN 1120
1340 Q(X,9)=Y
1350 NEXT X
1360 GOSUB 1880
1370 NEXT R
1380 FOR X=0 TO N-1
1390 FOR Z=0 TO 31
1400 IF C$(32*X+Z)="*" THEN 1430
1410 NEXT Z
1420 PRINT"BAD SCAN."
1430 C$(32*X+Z)=" "
1440 Q(X,9)=Z
1450 NEXT X
1460 R=8
1470 GOSUB 1880
1480 H1=0
1490 PRINT"THAT HAND ";
1500 FOR X=0 TO N-1
1510 Q(X,9)=0
1520 Y=0
1530 Z=0
1540 FOR R=1 TO 8
1550 Z=Z+Q(X,R)
1560 Q(X,R)=0
1570 IF Q(X,R+1)<>0 THEN 1600
1580 Y=Y+Z*Z
1590 Z=0
1600 NEXT R
1610 Q(X,0)=Q(X,0)+Y
1620 PRINT N$(X)" SCORED";Y;"POINTS FOR A";Q(X,0);"TOTAL."
1630 IF Q(H1,0)>Q(X,0) THEN 1650
1640 H1=X
1650 NEXT X
1660 IF Q(H1,0)>=29 THEN 2450
1670 GOTO 850
1680 FOR S=0 TO N-1
1681 S8=0
1682 S9=23-(LEN(S$(S))+7)
1684 IF INT(S9/2)*2<>S9 THEN S8=1
1686 S9=INT(S9/2)
1690 PRINT SPC( 9+S9);S$(S);"'S HAND:";SPC( S9+S8);
1700 NEXT S
1710 PRINT:PRINT
1720 FOR S=0 TO N-1
1730 PRINT"         CLB    DIA    HRT   SPD";
1740 NEXT S
1750 PRINT
1752 FOR S=0 TO N-1:PRINT US$;:NEXT
1754 PRINT
1760 FOR S=0 TO 7
1770 FOR Y=0 TO N-1
1780 Z=Y*32+S*4
1790 PRINT"\";T$(S);"     \";C$(Z);"     \";C$(Z+1);"     \";C$(Z+2);
1791 PRINT"     \";C$(Z+3);" \";
1800 NEXT Y
1810 PRINT T$(S)
1820 NEXT S
1832 FOR S=0 TO N-1:PRINT US$;:NEXT
1834 PRINT
1840 RETURN
1880 L1=0:H1=0
1890 FOR X=0 TO N-1
1900 Y=INT(Q(X,9)/4)
1910 Z=Q(X,9)-Y*4
1920 PRINT N$(X)" PLAYED THE "Y$(Y)" OF "X$(Z)"."
1930 C$(X*32+Q(X,9))=" "
1940 IF Q(X,9)>Q(L1,9) THEN 1960
1950 L1=X
1960 IF Q(X,9)<Q(H1,9) THEN 1980
1970 H1=X
1980 NEXT X
1990 IF H=1 THEN 2030
2000 Q(L1,R)=1
2010 PRINT N$(L1)" WON TRICK #";R;CHR$(8);"."
2020 GOTO 2050
2030 Q(H1,R)=1
2040 PRINT N$(H1)" WON TRICK #";R;CHR$(8);"."
2050 H=0
2060 IF Q(L1,10)<>Q(H1,10) THEN 2080
2070 H=1
2080 RETURN
2090 L1=0:L2=0:H1=0:H2=0
2100 FOR S=0 TO N-2
2110 FOR S1=0 TO 7
2120 IF P(S,S1)>P(L1,L2) THEN 2160
2130 IF C$(S*43+P(S,S1))=" " THEN 2160
2140 L1=S
2150 L2=S1
2160 IF P(S,S1)<P(H1,H2) THEN 2200
2170 IF C$(S*32+P(S,S1))=" " THEN 2200
2180 H1=S
2190 H2=S1
2200 NEXT S1
2210 NEXT S
2220 FOR S=R-1 TO 7
2230 IF H=1 THEN 2280
2240 IF P(N-1,S)<P(L1,L2) THEN 2260
2250 GOTO 2290
2260 IF RND(1)> 3 THEN 2380
2270 GOTO 2300
2280 IF P(N-1,S)>P(H1,H2) THEN 2260
2290 NEXT S
2300 H1=32
2310 Y=INT(RND(1)*16+H*16)
2320 FOR S1=R-1 TO 7
2330 L1=ABS(P(N-1,S1)-Y)
2340 IF H1<L1 THEN 2370
2350 H1=L1
2360 S=S1
2370 NEXT S1
2380 Q(X,9)=P(N-1,S)
2390 P(N-1,S)=P(N-1,R-1)
2400 Z=Q(X,9)-(INT(Q(X,9)/4)*4)
2410 IF Z<2 THEN 2430
2420 Z=ABS(Z-3)
2430 Q(X,10)=Z
2440 GOTO 1360
2450 IF H1>N-2 THEN 2510
2460 FOR X=H1+1 TO N-1
2470 IF Q(H1,0)>Q(X,0) THEN 2500
2480 PRINT"GAME TIED AFTER REGULATION, ENTERING SUDDEN DEATH."
2490 GOTO 850
2500 NEXT X
2510 PRINT N$(H1)" WON THE GAME. CONGRATULATIONS, "S$(H1)"."
2520 END
```

Pinball (핀 볼)

거리의 게임 센터에서가 아니면 즐길 수 없는 Pinball 게임. 이 게임을 당신의 컴퓨터가 시뮬레이트해 준다. 물론 동전은 하나도 필요 없다. 다음에 프로그램 설명을 간단히 한다.

(1) start/manitior program(1행~100행)

이 게임의 중심이 되는 프로그램이다. 게임의 설명이나 볼의 이동, 게임 끝 출력 등의 역할을 한다.

(2) 게임 설명 출력(1010행~1350행)

게임 방법을 출력한다. 내용은 sample run에 보인 대로이다.

(3) 스코어(score) 계산(2010행~3430행)

볼이 tab를 넘어뜨리면 그것을 세어 점수를 가산하는 프로그램이다. 또 플리퍼(flipper)에 볼이 가까와진 것을 알린다.

(4) 플리퍼를 움직인다(4010행~4140행).

지정된 플리퍼를 움직인다. 또, 볼이 아래로 떨어지면 1의 부분에 다음 볼로 이동하는 것을 알리고, 5에 보너스를 주도록 알린다.

(5) 보너스를 준다(5010행~5120행).

볼의 마지막에 보너스 점수를 주고 1로 돌아온다. 보너스는 tab 한 개를 넘어뜨릴 때마다 10점이다. 만일 볼 하나로 10개의 tab를 모두 넘어뜨리면, 250점의 보너스와 특별히 볼이 더 주어진다.

(6) 테이블(table)의 상태를 그린다(6010행~6100행).

테이블의 상태를 게임의 처음이나 도중에 출력한다. 게임 도중에는 볼이 무엇인가에 닿았을 때 4%의 확률로 출력한다.

(7) 볼을 튕겨 보낸다(7850행~7870행).

범퍼(bumper)에 맞은 볼은, 이 부분에서 되튕긴다.

(8) 테이블을 초기화한다(9500행~9999행).

게임초에 테이블을 초기화한다.

프로그램 개량을 위한 힌트

(1) 테이블 위의 범퍼, tab, gate 등을 추가하거나 움직이거나 한다.

(2) 새로운 역할을 하는 것을 추가한다.

(3) 만약 소리를 내는 컴퓨터라면, 볼의 이동에 따라 여러 가지 소리가 나도록 한다.

Pinball was conceived and written by Donald-Bruce Abrams.

```
RUN
                         PINBALL
                    CREATIVE COMPUTING
                  MORRISTOWN, NEW JERSEY


WELCOME TO COMPUTER PINBALL!!
WOULD YOU LIKE INSTRUCTIONS TO THIS
FANTASTIC GAME? YES


THE RULES OF COMPUTER PINBALL ARE FAIRLY SIMPLE.  YOU GET A TOTAL OF
FIVE BALLS.  IF YOU SCORE MORE THAN 1600, YOU GET A SIXTH BALL.  IF
YOUR SIX BALL SCORE IS MORE THAN 2200, YOU GET A SEVENTH BALL.
```

볼은 모두 5개입니다. 만약 1600점 이상이면 1개, 2200점 이상이면 또 한 개의 볼이 증가됩니다.

```
THIS TABLE HAS THREE FLIPPERS, EACH OF OF WHICH PROTECT AN OUT CHUTE.
HOWEVER, THIS SET DIFFERS FROM OTHER SETS, SINCE YOU MAY ONLY FLIP
TWO OF THE FLIPPERS ANY TIME THE BALL APPROACHES THE CHUTE.
NOTA BENE:  YOU DO NOT!!! KNOW FOR SURE WHERE THE BALL IS!!
SO, IF YOU FLIP THE WRONG TWO FLIPPERS, YOU LOSE THE BALL, AND THE
NEXT BALL IS PUT INTO PLAY.
     YOU CAN GET A PICTURE OF THE TABLE EVERY TIME THE BALL HITS
AN OBJECT, SO THAT MAY HELP YOU SOMEWHAT.  ALSO, YOU ARE TOLD WHERE
THE BALL IS EACH TIME IT HITS(EVEN IF YOU DON'T GET A PICTURE).
THERE IS SOME LOGIC TO THE CHOICE OF FLIPPERS, BUT SOME LUCK IS INVOLVED, TOO.
THE FLIPPERS ARE NUMBERED 1,2, AND 3 FROM LEFT TO RIGHT, AND ARE SHOWN
ON THE PICTURE BELOW AS '!' MARKS.
SINCE LUCK PLAYS ONLY A SMALL PART IN CHOOSING THE CORRECT FLIPPER,
YOU WILL DO POORLY IF YOU JUST GUESS WHICH FLIPPER THE BALL IS
HEADED TOWARD...
```

플리퍼는 모두 3개 있지만, 한 번에 2개밖에 못 움직입니다. 어느 플리퍼에 접근했는지는 컴퓨터가 알려주지 않으니, 추측으로 2개를 움직여야 합니다.

```
THE TABLE LOOKS LIKE THIS:
*****************


  0000000000000
 0             0
0    *  *  *    0
0  A  B  C  D   0
0    *     *    0
0 *  *  $  *  * 0
0    *     *    0
0* E  F  G  H  *0
0   *   *   *   0
0===         ===0
0  1  2  3  4  5  0
0 *  6  7  8  9  * 0
0===    0    ===0
0  0    0    0  0
!!!           !!!
0  \          /  0
0    \  I J /    0
0      \   /     0
0       \ /      0
\------!!----^-/
```

테이블의 그림입니다.
$ = 잭 포트　　A ~ H = 태브(TAB)
1 ~ 9 = 게이트　　* = 범퍼　　! = 플리퍼
=, /, \ 에 부딪친 볼은 튕겨집니다.
플리퍼는 왼쪽부터 1, 2, 3으로
번호가 붙여져 있습니다.

```
****************
THE CENTER BUMPER($) IS THE JACKPOT!
THE BALL IS PUT INTO PLAY THROUGH THE UP ARROW( ), AND GOES UP AND
AROUND, WHERE IT IS DEPOSITED ON THE UPPER HALF OF THE TABLE.  THE BALL
MAY BOUNCE FROM THE SIDE OF THE TABLE, AND MAY BOUNCE UP FROM THE
LINES ON THE SIDE(=) AND FROM THE DIAGONALS(\ AND /) AT THE BOTTOM
OF THE TABLE.  THE BUMPERS ARE INDICATED BY STARS(*).
     FLIPPERS ARE SHOWN AS EXCLAMATION POINTS(! OR !!).
THE BALL MAY GO OUT OF PLAY THROUGH ONE OF THE FOUR HOLES IN THE BOARD(O),
IN WHICH CASE YOU WILL GET A BONUS BUT LOSE THE BALL.
     GATES ARE SHOWN BY THE NUMBERS 1-9, AND KNOCK-DOWN TABS ARE SHOWN
AS THE LETTERS A-J.  YOU GET A BONUS FOR THESE AT THE END OF
A BALL, AND IF YOU KNOCK ALL OF THEM DOWN YOU GET A SPECIAL BONUS...

***EVERY ONCE IN A WHILE, I WILL SHOW YOU A PICTURE OF THE
TABLE AS IT HITS SOMETHING.  THE BALL IS SHOWN AS THE #.
```

↳ 다운시킨 태브의 수에 따라 보너스 점수가 가산됩니다.
볼이 어딘가에 부딪쳤을 때 테이블의 그림이 출력됩니다.
볼은 # 로 표시됩니다.

```
THE BALL IS NOW AT ( 2 , 11 ).
YOU RECEIVE  15  POINTS FROM THE BUMPER AT  5 , 10 .
SCORE:  15
```

볼의 현재 위치는 (2, 11)
↳ 5, 10에서 범퍼에 부딪쳤으므로 15점을 받습니다.

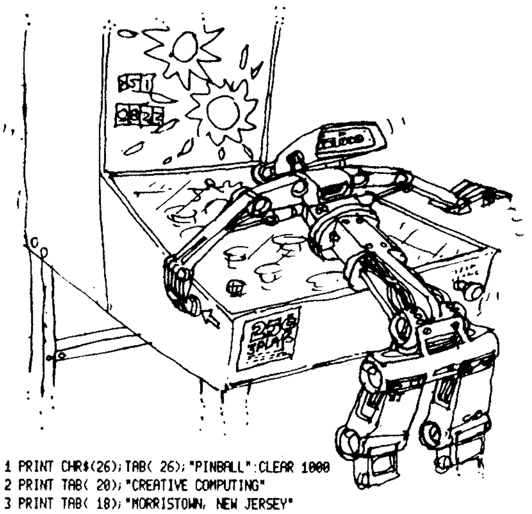
```
TAB H DOWN...
YOU RECEIVE  8  POINTS FROM THE BUMPER AT  6 , 14 .
SCORE:  23
YOU RECEIVE  12  POINTS FROM THE BUMPER AT  9 , 8 .
SCORE:  35
BALL APPROACHING FLIPPERS.  ENTER THE TWO FLIPPERS YOU WISH TO FLIP
IN THE FORM: X,Y ? 2,3
THE BALL IS NOW AT ( 7 , 10 ).
YOU RECEIVE  54  POINTS FROM THE BUMPER AT  7 , 10 .
SCORE:  89
```

볼이 플리퍼에 접근하여 옵니다. 어느 플리퍼를 움직이겠읍니까?

```
TAB H DOWN...
YOU RECEIVE  51  POINTS FROM THE BUMPER AT  9 , 11 .
SCORE:  1283

YOU GET  60  POINTS FROM GATE 4
SCORE:  1343
BALL APPROACHING FLIPPERS.  ENTER THE TWO FLIPPERS YOU WISH TO FLIP
IN THE FORM: X,Y ? 2,3
THE BALL IS NOW AT ( 8 , 2 ).
YOU RECEIVE  26  POINTS FROM THE BUMPER AT  8 , 2 .
SCORE:  1369
YOU RECEIVE  37  POINTS FROM THE BUMPER AT  8 , 2 .
SCORE:  1406


TAB A DOWN...
YOU GET  45  POINTS FROM GATE 2
SCORE:  1451


TAB F DOWN...
YOU RECEIVE  10  POINTS FROM THE BUMPER AT  9 , 8 .
SCORE:  1461
BALL APPROACHING FLIPPERS.  ENTER THE TWO FLIPPERS YOU WISH TO FLIP
IN THE FORM: X,Y ? 1,2
THE BALL IS NOW AT ( 3 , 6 ).
YOU RECEIVE  15  POINTS FROM THE BUMPER AT  6 , 5 .
SCORE:  1476
YOU RECEIVE  49  POINTS FROM THE BUMPER AT  3 , 5 .
SCORE:  1525


TAB E DOWN...

TOO BAD... YOU HAVE GONE STRAIGHT OUT A CHUTE HOLE('O' ON THE TABLE).
TO CONSOLE YOU, I WILL GIVE YOU AN EXTRA
 13  POINTS, TO BRING YOUR TOTAL TO  1538 .
YOU NOW HAVE HAVE  1  BALLS LEFT.
YOUR BALL KNOCKED DOWN  4  TAGS!!
FOR THIS STELLAR PERFORMANCE, YOU ARE AWARDED
***** 40 *****  POINTS!!
SCORE:  1578
```

볼은 직선으로 구멍에 떨어졌읍니다.
특별 보너스 13점
나머지 볼은 1개입니다.
4개의 태브를 쓰러뜨렸읍니다!
보너스 40점!

```
THE BALL IS NOW AT ( 2 , 10 ).
YOU GET  75  POINTS FROM GATE 3
SCORE:  1653
YOU RECEIVE  1  POINTS FROM THE BUMPER AT  7 , 10 .
SCORE:  1654
BALL APPROACHING FLIPPERS.  ENTER THE TWO FLIPPERS YOU WISH TO FLIP
IN THE FORM: X,Y ? 1,2
THE BALL IS NOW AT ( 5 , 10 ).
YOU RECEIVE  5  POINTS FROM THE BUMPER AT  5 , 10 .
SCORE:  1659
```



```
1 PRINT CHR$(26);TAB( 26);"PINBALL":CLEAR 1000
2 PRINT TAB( 20);"CREATIVE COMPUTING"
3 PRINT TAB( 18);"MORRISTOWN, NEW JERSEY"
4 PRINT:PRINT:PRINT
5 FM$=" #,### "
8 DIM R$(10),P$(20),L(2)
9 GOSUB 9500
10 A1=0:A0=0:X9=0
20 PRINT "WELCOME TO COMPUTER PINBALL!!"
30 PRINT "WOULD YOU LIKE INSTRUCTIONS TO THIS "
35 PRINT "FANTASTIC GAME";
40 INPUT Q$:IF LEFT$(Q$,1)="Y" THEN GOSUB 1010:GOTO 50
45 PRINT:PRINT "HOW ABOUT A PICTURE OF THE TABLE";
46 INPUT Q$:IF LEFT$(Q$,1)="Y" THEN GOSUB 6010
50 PRINT:PRINT:B=5
55 S=0:P=0
60 T$="ABCDEFGHIJ":PRINT
61 FOR Z=1 TO 10:R$(Z)=" ":NEXT Z:Z3=0
70 A1=0
71 A7=0
80 IF B<=0 THEN 290
100 L(1)=2+INT(RND(1)*6):L(2)=INT(RND(1)*14)+1
110 C=1+INT(RND(1)*7):A1=0
120 PRINT "THE BALL IS NOW AT (";L(1);",";L(2);") "
130 IF MID$(P$(L(1)),L(2),1)=" "THEN 150
140 GOSUB 2010
150 IF A7=7 THEN 280
160 IF A1<>4 THEN 180
170 GOTO 260
180 L(1)=L(1)+1
190 A1=0
200 L(2)=L(2)+INT(1+RND(1)*3)-2
210 IF L(2)<2 OR L(2)>15 THEN L(1)=L(1)+INT(1+RND(1)*3)-2
215 IF L(2)<2 OR L(2)>15 THEN L(2)=INT(2+RND(1)*13)
230 IF L(1)>=2 AND L(1)<=20 THEN GOTO 130
240 L(1)=INT(1+RND(1)*7)
250 GOTO 130
260 GOSUB 4010
270 IF A0=1 THEN 400
280 ON X9+1 GOTO 60,340
285 PRINT"YOU HAVE PLAYED YOUR SEVENTH BALL AND SCORED"; :PRINT USING FM$;P;
    PRINT "POINTS!"
286 PRINT"YOU'RE VERY GOOD!":GOTO 9999
290 PRINT "YOU HAVE PLAYED YOUR FIVE BALLS, AND HAVE SCORED"
293 PRINT "A TOTAL OF"; :PRINT"USING FM$;P; :PRINT "POINTS."
300 IF P<1600 THEN 9999
305 PRINT:PRINT "*** BONUS BALL ***"
310 B=B+1
320 X9=1
330 GOTO 60
340 PRINT "YOU HAVE PLAYED YOUR SIXTH BALL AND SCORED"; :PRINT USING FM$;P; :
    PRINT "POINTS!"
341 X9=2
350 IF P<2200 THEN 9999
355 PRINT:PRINT "*** BONUS BALL ***"
360 B=B+1:S=3
370 GOTO 60
380 GOTO 2010
390 GOTO 150
400 L(1)=2+INT(RND(1)*7)
405 L(2)=2+INT(RND(1)*13):X=0:Y=0
410 GOTO 110
1010 PRINT CHR$(26)
1030 PRINT
    "     THE RULES OF COMPUTER PINBALL ARE FAIRLY SIMPLE.
                                                   YOU GET A TOTAL OF"
```

Listing continued

```
1040 PRINT
    "FIVE BALLS.  IF YOU SCORE MORE THAN 1,600, YOU GET A SIXTH BALL.  IF"
1045 PRINT "YOUR SIX BALL SCORE IS MORE THAN 2,200, YOU GET A SEVENTH BALL."
1060 PRINT:PRINT
   "     THIS TABLE HAS THREE FLIPPERS, EACH OF OF WHICH PROTECT AN OUT CHUTE."
1070 PRINT "HOWEVER, THIS SET DIFFERS FROM OTHER SETS, SINCE YOU MAY ONLY FLIP"
1080 PRINT "TWO OF THE FLIPPERS ANY TIME THE BALL APPROACHES THE CHUTE."
1090 PRINT "NOTA BENE:  YOU DO NOT!!! KNOW FOR SURE WHERE THE BALL IS!!"
1093 PRINT "SO, IF YOU FLIP THE WRONG TWO FLIPPERS, YOU LOSE THE BALL, AND THE"
1095 PRINT "NEXT BALL IS PUT INTO PLAY.":PRINT
1097 PRINT "     YOU CAN GET A PICTURE OF THE TABLE EVERY TIME THE BALL HITS"
1098 PRINT
    "AN OBJECT, SO THAT MAY HELP YOU SOMEWHAT.  ALSO, YOU ARE TOLD WHERE"
1099 PRINT "THE BALL IS EACH TIME IT HITS (EVEN IF YOU DON'T GET A PICTURE)."
1100 PRINT
"THERE IS SOME LOGIC TO THE CHOICE OF FLIPPERS, BUT LUCK IS ALSO INVOLVED."
1110 PRINT
    "THE FLIPPERS ARE NUMBERED 1,2, AND 3 FROM LEFT TO RIGHT, AND ARE SHOWN"
1120 PRINT "ON THE PICTURE BELOW AS '!' MARKS."
1123 PRINT
    "     SINCE LUCK PLAYS ONLY A SMALL PART IN CHOOSING THE CORRECT FLIPPER,"
1125 PRINT "YOU WILL DO POORLY IF YOU JUST GUESS WHICH FLIPPER THE BALL IS"
1127 PRINT "HEADED TOWARD...":PRINT:GOSUB 50000:
    PRINT"THE TABLE LOOKS LIKE THIS:"
1130 PRINT "****************":PRINT:FOR Z=1 TO 20:PRINT P$(Z):NEXT Z
1140 PRINT:PRINT"****************"
1160 GOSUB 50000
1230 PRINT "     THE CENTER BUMPER($) IS THE JACKPOT!":PRINT
1240 PRINT
    "     THE BALL IS PUT INTO PLAY THROUGH THE UP ARROW(^), AND GOES UP AND "
1250 PRINT
    "AROUND, WHERE IT IS DEPOSITED ON THE UPPER HALF OF THE TABLE.  THE BALL"
1260 PRINT "MAY BOUNCE FROM THE SIDE OF THE TABLE, AND MAY BOUNCE UP FROM THE"
1263 PRINT
    "LINES ON THE SIDE (=) AND FROM THE DIAGONALS (\ AND /) AT THE BOTTOM"
1270 PRINT "OF THE TABLE.  THE BUMPERS ARE INDICATED BY STARS (*).":PRINT
1280 PRINT "     FLIPPERS ARE SHOWN AS EXCLAMATION POINTS (! OR !!).
1285 PRINT
  "THE BALL MAY GO OUT OF PLAY THROUGH ONE OF THE FOUR HOLES IN THE BOARD (0),"
1290 PRINT "IN WHICH CASE YOU WILL GET A BONUS BUT LOSE THE BALL.":PRINT
1300 PRINT
     "     GATES ARE SHOWN BY THE NUMBERS 1-9, AND KNOCK-DOWN TABS ARE SHOWN"
1310 PRINT "AS THE LETTERS A-J.  YOU GET A BONUS FOR THESE AT THE END OF"
1320 PRINT
    "A BALL, AND IF YOU KNOCK ALL OF THEM DOWN YOU GET A SPECIAL BONUS..."
1330 PRINT:PRINT"     EVERY ONCE IN A WHILE, I WILL SHOW YOU A PICTURE OF THE"
1340 PRINT "TABLE AS THE BALL HITS SOMETHING.  THE BALL IS SHOWN AS THE #."
1350 PRINT:PRINT:GOSUB 50000:RETURN
2010 IF MID$(P$(L(1)),L(2),1)="0" THEN 2070
2020 IF INT(RND(1)+.5)=<>1 THEN 2022
2021 IF MID$(P$(L(1)),L(2),1)="/"OR MID$(P$(L(1)),L(2),1)="\" THEN 2160
2022 S8=INT(RND(1)*6+1)
2023 FOR S7=1 TO S8:PRINT CHR$(7);:NEXT S7
2025 IF MID$(P$(L(1)),L(2),1)<="J"AND MID$(P$(L(1)),L(2),1)>="A" THEN 2190
2040 GOSUB 3010
2050 RETURN
2070 PRINT
    "TOO BAD... YOU HAVE GONE STRAIGHT OUT A CHUTE HOLE ('0' ON THE TABLE)."
2075 PRINT "TO CONSOLE YOU, I WILL GIVE YOU AN EXTRA"
2090 Q=INT(RND(1)*141)
2100 P=P+Q
2110 PRINT Q;"POINTS, TO BRING YOUR TOTAL TO";:PRINT USING FM$;P
2115 PRINT "YOU NOW HAVE HAVE";B-1;"BALLS LEFT."
2120 B=B-1
2130 A7=7
2140 GOSUB 5010
2150 RETURN
2160 L(1)=L(1)+(1+INT(RND(1)*4))-(1+INT(RND(1)*4))
2170 L(2)=2+INT(RND(1)*14)
2180 RETURN
2190 PRINT
2200 FOR Q=1 TO 10
2203 IF R$(Q)=MID$(P$(L(1)),L(2),1) THEN 2275
2204 NEXT Q
2205 Z3=Z3+1:R$(Z3)=MID$(P$(L(1)),L(2),1)
2210 PRINT:PRINT "TAB ";R$(Z3);" DOWN..."
2255 IF Z3=10 THEN GOSUB 5010
2260 RETURN
2275 RETURN
3010 IF MID$(P$(L(1)),L(2),1)=CHR$(8) THEN RETURN
3015 IF MID$(P$(L(1)),L(2),1)="]" THEN RETURN
3017 IF MID$(P$(L(1)),L(2),1)="[" THEN RETURN
3018 IF MID$(P$(L(1)),L(2),1)="^" THEN 3110
3019 A1=0
3020 IF MID$(P$(L(1)),L(2),1)="=" THEN 3410
3030 C=C-1
3040 IF C=0 THEN 3110
3050 IF MID$(P$(L(1)),L(2),1)="!"OR MID$(P$(L(1)),L(2),1)="\"THEN 3110
3060 IF MID$(P$(L(1)),L(2),1)="/"OR MID$(P$(L(1)),L(2),1)="-"THEN 3110
3070 IF INT(1+RND(1)*25)=4 THEN GOSUB 6010
3080 IF MID$(P$(L(1)),L(2),1)="$" THEN 3230
3090 IF MID$(P$(L(1)),L(2),1)="*" THEN 3200
3100 GOTO 3320
```

Run continued

```
TAB C DOWN...
YOU RECEIVE  5  POINTS FROM THE BUMPER AT  6 , 14 .
SCORE: 1664


TAB H DOWN...
BALL APPROACHING FLIPPERS.  ENTER THE TWO FLIPPERS YOU WISH TO FLIP
IN THE FORM: X,Y ? 2,3
THE BALL IS NOW AT ( 8 , 9 ).
YOU RECEIVE  32  POINTS FROM THE BUMPER AT  9 , 8 .
SCORE:  1696
YOU GET  60  POINTS FROM GATE 8
SCORE:  1756
BALL APPROACHING FLIPPERS.  ENTER THE TWO FLIPPERS YOU WISH TO FLIP
IN THE FORM: X,Y ? 2,3
THE BALL IS NOW AT ( 5 , 3 ).
YOU RECEIVE  57  POINTS FROM THE BUMPER AT  6 , 3 .
SCORE:  1813
BALL APPROACHING FLIPPERS.  ENTER THE TWO FLIPPERS YOU WISH TO FLIP
IN THE FORM: X,Y ? 1,3
THE BALL IS NOW AT ( 6 , 6 ).
BALL APPROACHING FLIPPERS.  ENTER THE TWO FLIPPERS YOU WISH TO FLIP
IN THE FORM: X,Y ? 1,3
THE BALL IS NOW AT ( 6 , 12 ).
YOU GET  15  POINTS FROM GATE 4
SCORE:  1828
YOU GET  60  POINTS FROM GATE 4
SCORE:  1888
YOU GET  90  POINTS FROM GATE 3
SCORE:  1978
YOU GET  45  POINTS FROM GATE 3
SCORE:  2023
YOU GET  45  POINTS FROM GATE 4
SCORE:  2068
BALL APPROACHING FLIPPERS.  ENTER THE TWO FLIPPERS YOU WISH TO FLIP
IN THE FORM: X,Y ? 1,2
THE BALL IS NOW AT ( 5 , 14 ).
YOU RECEIVE  53  POINTS FROM THE BUMPER AT  6 , 14 .
SCORE:  2121
YOU RECEIVE  32  POINTS FROM THE BUMPER AT  9 , 8 .
SCORE:  2153


TAB I DOWN...
BALL APPROACHING FLIPPERS.  ENTER THE TWO FLIPPERS YOU WISH TO FLIP
IN THE FORM: X,Y ? 1,2
THE BALL IS NOW AT ( 4 , 9 ).


TAB F DOWN...
YOU GET  90  POINTS FROM GATE 3
SCORE:  2243
```

— more —

Run Continued

```
 P I C T U R E
****************
  000000000000
 0             0
0   *   *   *   0
0  A   B   C  D  0
0    *    *      0
0 * *  $   *   * 0
0    *    *      0
0* E   F   G   H *0
0   *   *   *    0
0===          ===0
0  1 # 3 4 5    0
0 * 6 7 8 9   * 0
0===    0     ===0
0  0    0     0  0
!!!            !!!
0  \           /  0
0    \  I J /     0
0     \     /     0
0      \  /       0
\------!!----^-/

THE BALL WAS AT THE '#'    볼은 '#' 입니다.

****************
YOU GET  75  POINTS FROM GATE 2
SCORE:  2318
YOU GET  45  POINTS FROM GATE 1
SCORE:  2363


TAB E DOWN...
BALL APPROACHING FLIPPERS.  ENTER THE TWO FLIPPERS YOU WISH TO FLIP
IN THE FORM: X,Y ? 2,3
THE BALL IS NOW AT ( 2 , 3 ).
BALL APPROACHING FLIPPERS.  ENTER THE TWO FLIPPERS YOU WISH TO FLIP
IN THE FORM: X,Y ? 2,3
NO, YOU HAVE CHOSEN TO PROTECT THE WRONG FLIPPERS.  YOU NOW HAVE
 0  BALLS LEFT.                   그 플리퍼는 아닙니다.
YOUR BALL KNOCKED DOWN  5  TAGS!!
FOR THIS STELLAR PERFORMANCE, YOU ARE AWARDED
***** 50 *****  POINTS!!
SCORE:  2413

YOU HAVE PLAYED YOUR FIVE BALLS, AND HAVE SCORED
A TOTAL OF  2413  POINTS.

*** BONUS BALL ***  보너스 볼

THE BALL IS NOW AT ( 7 , 13 ).
YOU GET  75  POINTS FROM GATE 4
SCORE:  2488
BALL APPROACHING FLIPPERS.  ENTER THE TWO FLIPPERS YOU WISH TO FLIP
IN THE FORM: X,Y ? 1,2
THE BALL IS NOW AT ( 5 , 7 ).
YOU HAVE HIT THE JACKPOT!!!! YOU HAVE JUST WON  126  POINTS!!
YOU NOW HAVE  2614  POINTS!


TAB G DOWN...
YOU GET  60  POINTS FROM GATE 4
SCORE:  2674
YOU RECEIVE  50  POINTS FROM THE BUMPER AT  9 , 8 .
SCORE:  2724
YOU GET  75  POINTS FROM GATE 2
SCORE:  2799
TOO BAD... YOU HAVE GONE STRAIGHT OUT A CHUTE HOLE('0' ON THE TABLE).
TO CONSOLE YOU, I WILL GIVE YOU AN EXTRA
 41  POINTS, TO BRING YOUR TOTAL TO  2840 .
YOU NOW HAVE HAVE  0  BALLS LEFT.
YOUR BALL KNOCKED DOWN  1  TAGS!!
FOR THIS STELLAR PERFORMANCE, YOU ARE AWARDED
***** 10 *****  POINTS!!
SCORE:  2850
YOU HAVE PLAYED YOUR SIXTH BALL AND SCORED  2850  POINTS!

*** BONUS BALL ***

THE BALL IS NOW AT ( 5 , 13 ).
YOU GET  60  POINTS FROM GATE 5
SCORE:  2910
BALL APPROACHING FLIPPERS.  ENTER THE TWO FLIPPERS YOU WISH TO FLIP
IN THE FORM: X,Y ? 1,2
NO, YOU HAVE CHOSEN TO PROTECT THE WRONG FLIPPERS.  YOU NOW HAVE
 0  BALLS LEFT.
YOU HAVE PLAYED YOUR SEVENTH BALL AND SCORED  2910  POINTS!
YOU'RE VERY GOOD!              참 잘했읍니다.
COME PLAY AGAIN SOMETIME!!   다시 한 번 도전하기 바랍니다.
OK
```

```
3110 A1=4
3120 GOTO 3390
3130 IF L(2)<6 THEN GOTO 3180
3140 IF L(2)<11 THEN 3200
3150 D=2:IF INT(1+RND(1)*2)=1 THEN D=D+(1+INT(RND(1)*3))-2:IF D>3 THEN D=D-3
3170 RETURN
3180 D=1:IF INT(1+RND(1)*2)=1 THEN D=INT(RND(1)*3)+D
3190 RETURN
3200 D=2:IF INT(1+RND(1)*2)=1 THEN D=D+INT(RND(1)*3):IF D>3 THEN D=D-3
3210 RETURN
3230 Q=45+INT(RND(1)*146)
3240 PRINT "YOU HAVE HIT THE JACKPOT!!!! YOU HAVE JUST WON";Q;"POINTS!!"
3250 P=P+Q
3260 PRINT "YOU NOW HAVE";:PRINT USING FM$;P;:PRINT "POINTS!"
3270 GOTO 3360
3280 Q=INT(RND(1)*64)+1:P=P+Q
3290 PRINT "YOU RECEIVE";Q;"POINTS FROM THE BUMPER AT ";L(1);",";L(2);"."
3300 PRINT "SCORE: ";:PRINT USING FM$;P
3310 GOTO 3360
3320 Q=15*(1+INT(RND(1)*6)):P=P+Q
3330 PRINT "YOU GET";Q;"POINTS FROM GATE ";MID$(P$(L(1)),L(2),1)
3340 PRINT "SCORE: ";:PRINT USING FM$;P
3360 L(1)=(L(1)-INT(1+RND(1)*3))-INT(1+RND(1)*2)
3370 L(2)=L(2)-3+INT(RND(1)*5)+1
3380 RETURN
3390 GOSUB 7850
3400 GOTO 3130
3410 L(1)=L(1)-(1+INT(RND(1)*5))
3420 L(2)=L(2)-2+(1+INT(RND(1)*4))
3430 RETURN
4010 PRINT
     "BALL APPROACHING FLIPPERS.  ENTER THE TWO FLIPPERS YOU WISH TO FLIP"
4020 INPUT "IN THE FORM: X,Y ";V,W
4030 IF V=D OR W=D THEN 4110
4040 PRINT "NO, YOU HAVE CHOSEN TO PROTECT THE WRONG FLIPPERS.  YOU NOW HAVE"
4060 PRINT B-1;"BALLS LEFT."
4070 B=B-1
4080 A0=0
4090 GOSUB 5010
4100 RETURN
4110 A0=1
4120 C=INT(1+RND(1)*5)
4140 RETURN
5010 IF Z3=10 THEN 5090
5020 IF Z3=0 THEN RETURN
5030 PRINT "YOUR BALL KNOCKED DOWN";Z3;"TAGS!!"
5040 PRINT "FOR THIS STELLAR PERFORMANCE, YOU ARE AWARDED "
5050 PRINT "*****";10*Z3;"*****";:PRINT" POINTS!!"
5060 P=P+10*Z3
5080 GOTO 5120
5090 P=P+250
5100 PRINT "***** YOU KNOCKED DOWN ALL 10 TAGS!!! *****"
5110 PRINT "YOU ARE AWARDED 250 POINTS AND AN EXTRA BALL!!!"
5114 B=B+1
5120 PRINT "SCORE: ";:PRINT USING FM$;P:RETURN
6010 PRINT
6020 PRINT:PRINT" P I C T U R E ":PRINT"****************"
6040 FOR Q=1 TO L(1)-1:PRINT P$(Q):NEXT Q
6044 PRINT MID$(P$(L(1)),1,L(2)-1);"#";MID$(P$(L(1)),L(2)+1,16-L(2))
6050 FOR Q=L(1)+1 TO 20:PRINT P$(Q):NEXT Q
6060 PRINT:PRINT"THE BALL WAS AT THE '#'":PRINT:PRINT"****************"
6070 GOSUB 50000
6100 RETURN
7850 L(2)=ABS(L(2)-2+INT(1+RND(1)*4))
7860 IF L(2)<=15 THEN RETURN
7870 L(2)=1+INT(RND(1)*15):RETURN
9500 P$(1)="  "
9501 FOR Q=1 TO 12:P$(1)=P$(1)+"["+CHR$(8)+"]":NEXT Q
9502 P$(1)=P$(1)+"  "
9510 P$(2)=" 0             0 "
9520 P$(3)="0   *   *   *    0"
9530 P$(4)="0  A  B  C  D  0"
9540 P$(5)="0    *    *      0"
9550 P$(6)="0 * *  $  *  * 0"
9560 P$(7)="0    *    *      0"
9570 P$(8)="0* E  F  G  H *0"
9580 P$(9)="0   *   *   *    0"
9590 P$(10)="0===          ===0"
9600 P$(11)="0  1 2 3 4 5   0"
9610 P$(12)="0 * 6 7 8 9  * 0"
9620 P$(13)="0===   0    ===0"
9630 P$(14)="0  0   0    0  0"
9640 P$(15)="!!!            !!!"
9650 P$(16)="0  \          /  0"
9660 P$(17)="0   \  I J /    0"
9670 P$(18)="0    \     /    0"
9680 P$(19)="0     \  /      0"
9690 P$(20)="\------!!----^-/"
9700 RETURN
9999 PRINT "COME PLAY AGAIN SOMETIME!!":END
50000 LINE INPUT "ENTER 'RETURN' TO CONTINUE. ";XX$
50010 PRINT CHR$(26)
50020 RETURN
```

Rabbit Chase (토끼 사냥)

이것은 토끼를 잡는 게임. 얄미운 토끼는 모든 방향으로 달아난다. 당신은 토끼보다 빨리, 또는 적어도 같은 속도로 뒤쫓지 않으면 안 된다(이 속도는 컴퓨터가 결정한다). 토끼와의 거리 20이내까지 접근하지 않으면 잡을 수 없다. 한 번 뛸 때마다 컴퓨터가, 당신과 토끼의 위치, 토끼가 도망치려고 하는 방향, 먼젓번에 어느 정도까지 접근했는지를 알려 주니, 당신은 당신의 뛸 방향을 입력하기 바란다. 좌표와 방향는 직교 좌표의 평면상에서 정해진다.

이 게임을 하면, X, Y 좌표 평면을 읽는 연습도 된다. 출력 결과를 보고 '여기다'라고 생각하는 방향으로 뛰는 것인데, 그 방향를 계산해 보는 것도 재미있을 것이다. 단, 메모지를 사용하는 것은 교활하다. 암산으로 하도록(초보자라면 봐 줄 수도 있지만).

프로그램 개량에 관한 힌트

(1) 자기의 뛰는 속도를 선택할 수 있도록 해 보자.

(2) 토끼를 잡을 수 있는 거리를 바꿔 본다. 50으로 하면 쉽지만, 15라면 메모지가 필요하게 되며, 5라면 각도기와 그래프 용지가 필요하게 될 것이다.

(3) 3차원, 4차원으로 확장해 본다.

(4) 쫓아갈 수 있는 최대 횟수를 정하거나, 필요한 경우에는 힌트를 출력하게 한다.

```
RUN
                         RABBIT CHASE
            CREATIVE COMPUTING  MORRISTOWN NEW JERSEY



SPEEDS (UNITS/HOP): 속도(1회에 달리는 거리)
RABBIT - 130  YOU - 130

              토끼와의 거리                  토끼와 가장 접근할 때의 거리
              ↓                              ↓
HOP#:      1  DISTANCE TO RABBIT:   488   CLOSEST APPROACH:   488
RABBIT ---      POSITION: ( -190,  450)   AND DIRECTION:  203
YOU ------      POSITION: (    0,    0)   AND DIRECTION:? 135
                                                   방향은?

HOP#:      2  DISTANCE TO RABBIT:   377   CLOSEST APPROACH:   377
RABBIT ---      POSITION: ( -310,  399)   AND DIRECTION:  130
YOU ------      POSITION: (  -92,   92)   AND DIRECTION:? 135


HOP#:      3  DISTANCE TO RABBIT:   378   CLOSEST APPROACH:   377
RABBIT ---      POSITION: ( -393,  499)   AND DIRECTION:   11
YOU ------      POSITION: ( -184,  184)   AND DIRECTION:? 90


HOP#:      4  DISTANCE TO RABBIT:   225   CLOSEST APPROACH:   225
RABBIT ---      POSITION: ( -266,  524)   AND DIRECTION:  314
YOU ------      POSITION: ( -184,  314)   AND DIRECTION:? 135


HOP#:      5  DISTANCE TO RABBIT:   103   CLOSEST APPROACH:    89
RABBIT ---      POSITION: ( -175,  430)   AND DIRECTION:  274
YOU ------      POSITION: ( -276,  406)   AND DIRECTION:? 0


HOP#:      6  DISTANCE TO RABBIT:   107   CLOSEST APPROACH:    57
RABBIT ---      POSITION: ( -166,  300)   AND DIRECTION:   72
YOU ------      POSITION: ( -146,  406)   AND DIRECTION:? 225


HOP#:      7  DISTANCE TO RABBIT:   157   CLOSEST APPROACH:    38
RABBIT ---      POSITION: ( -126,  424)   AND DIRECTION:  218
YOU ------      POSITION: ( -238,  314)   AND DIRECTION:? 0


HOP#:      8  DISTANCE TO RABBIT:   125   CLOSEST APPROACH:    68
RABBIT ---      POSITION: ( -229,  344)   AND DIRECTION:  134
YOU ------      POSITION: ( -108,  314)   AND DIRECTION:? 170
```

Rabbit Chase was written by Ted C. Park of Pacific Union College. It first appeared in *Creative Computing*, Mar/Apr 1975.

```
10 PRINT TAB( 29);"RABBIT CHASE"
20 PRINT TAB( 15);"CREATIVE COMPUTING  MORRISTOWN NEW JERSEY"
30 PRINT
40 PRINT
50 PRINT
100 REM ('T' IS THE SQUARE OF THE CAPTURE DISTANCE
105 LET T=400
115 REM --   INITALIZE VELOCITIES AND POSITIONS
125 LET V1=INT(RND(1)*10+.5)*10+50
130 LET V2=(INT(RND(1)*2+.5)+1)*V1
135 LET X1=(INT(RND(1)*400)+100)*SGN(RND(1)-.5)
140 LET Y1=(INT(RND(1)*400)+100)*SGN(RND(1)-.5)
145 IF Y1=0 OR X1=0 THEN 135
150 LET X2=0
155 LET Y2=0
160 PRINT "SPEEDS (UNITS/HOP):"
165 PRINT "RABBIT -";V1,"YOU -";V2
170 PRINT
175 PRINT
180 PRINT
185 LET C=(X2-X1)^2+(Y2-Y1)^2
190 LET P1=3.141592653589#/180
195 LET H=1
200 REM --   PRINT OUT
215 LET D1=INT(RND(1)*359)
220 PRINT "HOP #: ";
225 LET Z=H
230 GOSUB 510
235 PRINT "  DISTANCE TO RABBIT: ";
240 LET Z=SQR((X2-X1)^2+(Y2-Y1)^2)
245 GOSUB 510
250 PRINT "   CLOSEST APPROACH: ";
255 LET Z=SQR(C)
260 GOSUB 510
265 PRINT
270 PRINT "RABBIT ---      POSITION: (";
275 LET Z=X1
280 GOSUB 520
285 PRINT ",";
290 LET Z=Y1
295 GOSUB 520
300 PRINT ")   AND DIRECTION:";
305 LET Z=D1
310 GOSUB 510
315 PRINT
320 PRINT "YOU ------      POSITION: (";
325 LET Z=X2
330 GOSUB 520
335 PRINT ",";
340 LET Z=Y2
345 GOSUB 520
350 PRINT ")   AND DIRECTION:";
355 INPUT D2
360 IF D2 < 0 OR D2 >=360 THEN 355
365 PRINT
370 PRINT
380 REM --   COMPUTE PATHS AND SEE IF THEY INTERSECT
390 LET X3=V1*COS(D1*P1)/100
395 LET Y3=V1*SIN(D1*P1)/100
400 LET X4=V2*COS(D2*P1)/100
405 LET Y4=V2*SIN(D2*P1)/100
410 LET C=(X2-X1)^2+(Y2-Y1)^2
415 FOR I=1 TO 100
420 LET X1=X1+X3
425 LET Y1=Y1+Y3
430 LET X2=X2+X4
435 LET Y2=Y2+Y4
440 IF C < (X2-X1)^2+(Y2-Y1)^2 THEN 445
443 C=(X2-X1)^2+(Y2-Y1)^2
445 NEXT I
450 LET H=H+1
455 IF C > T THEN 215
460 PRINT
465 PRINT
470 PRINT "**********"
475 PRINT "* GOT YA *"
480 PRINT "**********"
485 PRINT
490 PRINT
500 END
510 REM --   CONVERTS NUMBERS TO STRINGS
     FOR CLEANER OUTPUT
520 Z=INT(Z+.5)
525 PRINT RIGHT$("     "+STR$(Z),5);
585 RETURN
590 END
```

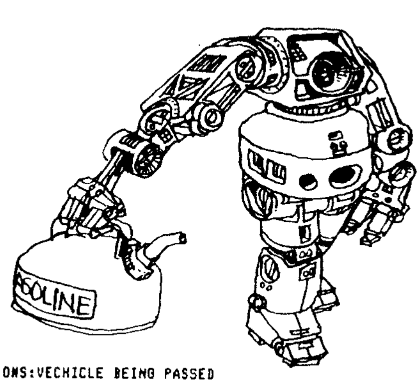
Roadrace (로드 레이스)

이 게임에서는, 당신은 훌륭한 경주자이다. 유명한 'NY route 20'을 5마일당 $\frac{1}{2}$의 연료비로 주파하지 않으면 안 되는 것이다. 연료비는 차종이나 노면(路面)의 상태에 따라 당연히 달라진다.

먼저, 좋아하는 차를 선택한다. 경주가 시작되면, 노면 상태나 다른 차에 신경을 쓰면서 속도를 조종한다.

다른 차와 나란히 달리면 갑자기 대형 버스가 나타나거나 한다. 완전 주파는 꽤 어려울 것이다. 급커브나 휘발유에 유의하면서 이 난코스에 도전해 보라.

This program originally appeared in *Creative Computing*, Jan/Feb 1975.




```
RUN
                        ROADRACE
            CREATIVE COMPUTING  MORRISTOWN NEW JERSEY


      THIS IS THE PITTSFIELD-ALBANY ROAD RALLY

WELCOME TO THE FIRST ANNUAL PITTSFIELD-ALBANY ROAD RALLY.
YOU'LL BE DRIVING RT. 20. TRYING TO WIN THE RACE AND
STAY ALIVE IN THE BARGIN. GOOD LUCK!!  ↖ 루트 20에 도전.
                                          행운을 빕니다.
YOY HAVE YOUR CHOICE OF: (1) A VW; (2) 283 NOVA;
(3) Z-28; OR (4) FERRARI  (1) (2) (3) (4) 중에서 차를 고릅니다.

CHOOSE THE CAR YOU WANT BY THE NUMBER IN FRONT OF IT.
REMEMBER, THE BETTER THE CAR, THE MORE GAS IT USES.
WHICH CAR? 3  좋은 차는 휘발유를 씁니다. 어느 것으로 하겠읍니까?

NOW YOU CHOOSE WHICH COURSE YOU WANT TO RACE ON.
THE EASIEST COURSE IS NUMBER 1, AND IS THE STRAIGHTEST
ROUTE. NUMBER 5 CONSISTS MOSTLY OF TURNS AND TWISTS. 코스를 정합
WHICH ROUTE DO YOU WANT? 1                       니다. 5가 가장 어렵습니다.

YOU WILL NEED TO TRAVEL 5 MILES WITH .5 GALLONS OF GAS.
YOUR STATUS WILL BE SHOWN EACH 10 SECONDS. AFTER EACH
STATUS CHECK YOU WILL BE ASKED FOR A NEW RATE OF GAS.
A RATE OF +10 IS HARD ACCELERATION, AND -10 IS HARD BRAKING
ANY NUMBER IN BETWEEN IS ALLOWABLE.     가속은 -10 부터 +10
                                                  까지입니다.
PRESENT VELOCITY = 0  NO. OF GALLONS = .5
NO. OF MILES = 0  TIME PASSED = 0 SECONDS
WHAT IS YOUR NEW RATE OF GAS ? 10  가속도는?

ROAD CONDITIONS:CLEAR AND STRAIGHT  도로: 장애 없으며 똑바릅니다.
       ↙ 속도                 ↙ 나머지 휘발유
PRESENT VELOCITY = 70  NO. OF GALLONS = .47
NO. OF MILES = .152174  TIME PASSED = 10 SECONDS
WHAT IS YOUR NEW RATE OF GAS ? 2       └ 경과 시간
주행 거리
ROAD CONDITIONS:VECHICLE AHEAD 1000 FEET  1000 피트 앞에 차가 있음.

PRESENT VELOCITY = 55  NO. OF GALLONS = .464
NO. OF MILES = .271739  TIME PASSED = 20 SECONDS
WHAT IS YOUR NEW RATE OF GAS ? 10

ROAD CONDITIONS:VECHICLE PASSED BY  75 MPH  75MPH로 통과

PRESENT VELOCITY = 102  NO. OF GALLONS = .434
NO. OF MILES = .493478  TIME PASSED = 30 SECONDS
WHAT IS YOUR NEW RATE OF GAS ? 10

ROAD CONDITIONS:VECHICLE AHEAD 1000 FEET  1000 피트 앞에 차가 있음.

PRESENT VELOCITY = 130  NO. OF GALLONS = .404
NO. OF MILES = .776087  TIME PASSED = 40 SECONDS
WHAT IS YOUR NEW RATE OF GAS ? -5

ROAD CONDITIONS:VECHICLE BEING PASSED
GREYHOUND BUS IN OTHER LANE DOING  64  MPH CRASH VELOCITY =  105
WHERE IS YOUR FUNERAL BEING HELD ?      버스에 충돌. 끝.

YOU WANT TO TRY AGAIN, RIGHT !!!!
1-YES, 2-NO? 1
WHICH CAR? 3

WHICH ROUTE DO YOU WANT? 5

PRESENT VELOCITY = 0  NO. OF GALLONS = .5
NO. OF MILES = 0  TIME PASSED = 0 SECONDS
WHAT IS YOUR NEW RATE OF GAS ? 10

ROAD CONDITIONS: WARNING: CURVE AHEAD  앞에 커브가 있읍니다.

PRESENT VELOCITY = 70  NO. OF GALLONS = .47
NO. OF MILES = .152174  TIME PASSED = 10 SECONDS
WHAT IS YOUR NEW RATE OF GAS ? 0

ROAD CONDITIONS:THROUGH CURVE     커브를 통과했읍니다.

PRESENT VELOCITY = 41  NO. OF GALLONS = .47
NO. OF MILES = .241304  TIME PASSED = 20 SECONDS
WHAT IS YOUR NEW RATE OF GAS ? 7

ROAD CONDITIONS: WARNING: CURVE AHEAD  앞에 커브가 있읍니다.

PRESENT VELOCITY = 73  NO. OF GALLONS = .449
NO. OF MILES = .4  TIME PASSED = 30 SECONDS
WHAT IS YOUR NEW RATE OF GAS ? -1

ROAD CONDITIONS:THROUGH CURVE  커브를 통과했읍니다.

PRESENT VELOCITY = 36  NO. OF GALLONS = .449
NO. OF MILES = .478261  TIME PASSED = 40 SECONDS
WHAT IS YOUR NEW RATE OF GAS ? 10

ROAD CONDITIONS:CLEAR AND STRAIGHT     똑바른 길

PRESENT VELOCITY = 91  NO. OF GALLONS = .419
NO. OF MILES = .676087  TIME PASSED = 50 SECONDS
WHAT IS YOUR NEW RATE OF GAS ? 5

ROAD CONDITIONS: WARNING: CURVE AHEAD  앞에 커브가 있읍니다.

PRESENT VELOCITY = 88  NO. OF GALLONS = .404
NO. OF MILES = .867391  TIME PASSED = 60 SECONDS
WHAT IS YOUR NEW RATE OF GAS ? -4

ROAD CONDITIONS:THROUGH CURVE     커브를 통과했읍니다.

PRESENT VELOCITY = 23  NO. OF GALLONS = .404
NO. OF MILES = .917391  TIME PASSED = 70 SECONDS
WHAT IS YOUR NEW RATE OF GAS ? 7

ROAD CONDITIONS: WARNING: CURVE AHEAD  앞에 커브가 있읍니다.

PRESENT VELOCITY = 62  NO. OF GALLONS = .383
NO. OF MILES = 1.05217  TIME PASSED = 80 SECONDS
WHAT IS YOUR NEW RATE OF GAS ? -1

ROAD CONDITIONS:ARE TERRIBLE  위험! 16MPH의 커브 길. 29MPH로
 16  WAS THE SPEED THROUGH THE CURVE   통과하려다 애석하게도 저세상.
 29  WAS YOUR SPEED, BY THE WAY WHERE IS YOUR FUNERAL BEING HELD ?
```